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THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXVII. No. 1. SIXPENCE WEEKLY.

Registered at the G.P.O. as a Newspaper.

THE ROYAL AIR FORCE PAGEANT.



Photograph by Lovell Smith, Richmond

THE EVENT OF THE DAY:—The Eighteen De Havilland 9As. of No. 39 and No. 207 Squadrons leaving the Aerodrome in formation. In the left foreground is the R.A.F. Band. The flags above indicate the Royal Enclosure. On the right is the R.A.F. Club enclosure.

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THE ROYAL AIR FORCE PAGEANT.

A night or two before the Pageant one of the Great Great Ones of the Royal Air Force remarked that so long as the R.A.F. Pageant drew enough people to make it a paying concern for the benefit of Service charities it would be held at Hendon or somewhere near London, but that as soon as it "ceased to attract"—to use the theatrical cliché—it would be held over Salisbury Plain or somewhere in the open where aeroplanes could really do things and where it could be used as a test of the ability of the personnel rather than as a display of that ability. There is a vast difference between the two. The latter means showing what we all know that the R.A.F. people can do. The former means finding out just how much they are capable of doing. It is the difference between an exhibition of sparring and a prize-fight.

Judging by the masses of humanity which somehow managed to penetrate to Hendon on Saturday, June 28, the Pageant will be held annually near London till at least the outbreak of the next war and probably for a good many years afterwards. There is an idea among intelligent folk like ourselves who are intensely interested in flying (you don't read THE AEROPLANE of course unless you are interested and intelligent) that the Great British Public does not find flying amusing and does not want to see flying or to understand about it. Saturday's crowd ought to upset that cherished belief of ours which causes that nice warm internal feeling of superiority and gives us to thank God like the Pharisee that we are not as other men and women are. We have got to come off our perches and admit that the mere Public is very keen on flying and would take a still more active part in it if not prevented by the intense stupidity of those on whom the progress of flying depends—a stupidity which acts in much the same way that a dashpot damper or shock-snubber acts on too-lively springs on a car and prevents the mere passengers from going through the roof.

Which thing is an allegory. The driver and the front-seat passenger never mind how great is the rebound of the springs of a car. It is the back-seat passengers who get too much of them. The rebound of interest in aviation which is now beginning after the recent five-year slump might well be too much for the good of aviation as a whole. Though we who are in the front seats might be quite pleased about it, those who have come in later (as passengers out of whom we hope to make a fortune) might easily be shaken out again, or at least their confidence in our ability to conduct aviation might be badly shaken, which would be as bad. So the pleasantly stupid people at the Air Ministry and at the Treasury and at the Foreign Office and at the Admiralty and in Commercial Aviation and even in the Society of British Aircraft Constructors and in the Royal Aero Club who prevent us from bustling along as fast as we could wish are fulfilling that function for which doubtless they were created. It is difficult to account for them on any other hypothesis.

Be that as it may, the Public evidently loves flying or loves the Air Force, for it rolled or tramped or tramped up to Hendon in its tens of thousands. The Pageant was feebly advertised in the newspapers compared with contemporary attractions. Nobody thought of prosecuting the Chief of the Air Staff for cruelty to pilots, even though a pilot's neck ought to be worth a bit more than that of a Rodeo steer. Nobody broke into dithyrambic ecstasies over any Lenglen of the air even though a Snipe can out-gambol Suzanne. Nobody even brought an action against anybody else to dispute the legitimacy of descent of any of the latest type infant aeroplanes which were to be on view. In fact the existence of the Pageant was nearly as skilfully camouflaged as if there had been a War in progress.

Yet the Public, full of 'satiabie curiosity like Mr. Kipling's baby elephant, discovered the Pageant and revelled in it. The car enclosure, such of it as was not wasted by the chief policeman's silly "arrow formation" which successfully achieved the feat of making each Morris-Oxford occupy the space of two Rolls-Royces, was packed by lunch time, and those unwise people who arrived shortly

after 14.00 hrs. (otherwise 2 p.m.) only managed to get into the grounds after two hours or more of struggling. A pilot who was out in the Avro race about 14.30 hrs. said that Colindale Avenue and the Edgware Road were blocked with cars two or three abreast for over a mile from the gates.

What would happen if the Pageant were adequately advertised and were held on some day when there were no great counter-attractions at Wembley, Wimbledon, Olympia and elsewhere one hates to think. Even as it is it seems that the Air Force is in grave danger of becoming as popular as was the Royal Navy before the War 1914-18. When it does become so it will cease to be interesting or amusing. But in the meantime we can still be happy in the feeling that we few hundreds of thousands who went to see the Pageant are the elect of the British Empire.

A Dress Rehearsal of the Pageant took place on the Friday morning and one had the pleasure of taking to it an officer of the U.S. Army Air Service. He watched the performance. He talked to our officers. He looked at our machines, old and new. He was told a few figures about the numbers of



ROYALTY AT THE PAGEANT.—The Duke and Duchess of York and the Duke of Connaught being conducted to the Royal Enclosure by Air Commodore Webb-Bowen (Air Officer Commanding the Inland Area).

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men and machines. And at the finish he remarked quietly and sincerely, "You've just got us cold."

That, one believes, sums up the position of the R.A.F. in relation to the air forces of the rest of the World. For all our grumbling and grouching—or because of it—we have the finest air force that exists. Perhaps not in numbers but certainly in organisation, discipline, keenness, flying quality and fighting power there is nothing in the World to touch us. For which we can thank God and the Air Staff.

THE AVRO RACE.

Though the display did not begin officially till 15.00 hours there was much amusing flying from 11.00 hrs. till 15.00 hrs. During that time the heats of the inter-unit race for standard Avro training machines were flown and also the heats of the inter-unit relay race.

For the Standard Avro race 22 units had entered machines. These were Andover (Staff College), Andover (No. 7 Group Headquarters), Bircham Newton (No. 99 Bombing Squadron), Cranwell (Cadet College), Digby (No. 2 Flying Training School), Duxford (No. 19 Fighter Squadron), Duxford (No. 111 Fighter Squadron), Farnborough (Experimental Section), Flowerdown (Electrical and Wireless School), Gosport (R.A.F. Base, Fleet Air Arm), Halton (R.A.F. Station—training of Aircraft Apprentices), Henlow (Inland Area Aircraft Repair Depot), Kenley (No. 24 Communication Squadron), Kenley (No. 32 Fighter Squadron), Leuchars (R.A.F. Base—Fleet Air Arm), Manston (No. 9 Bombing Squadron), Manston (School of Technical Training—Men), Netheravon (No. 1 F.T.S.), Northolt (No. 41 Fighter Squadron), Northolt (Inland Area Communication Flight—official taxi station), Shotwick (No. 5 F.T.S.), Upavon (No. 3 Fighter Squadron), and Upavon (Central Flying School—instruction of instructors).

This race, which is for a Challenge Cup presented by Captain the Right Hon. F. E. Guest, when he was Secretary of State for Air, is always an interesting event. The holders in 1923-24 were No. 1 F.T.S. (Netheravon), which was fit and proper.

As may be seen, most of the units have no use for Avro training machines in the ordinary way. Fighting and bombing squadrons, Fleet Air Arm stations and so forth, do not use them in their work, and such exalted affairs as group headquarters and schools of technical training, let alone the Staff College, only use Avros much as administrative units in the Army use horses—to jolt the livers of sedentary officers. But those in High Places very wisely judge that it is good for the superior pilot to fly the simple standard Avro once in a while to keep him in touch with the younger pilots who come to his station straight from an ordinary F.T.S. (or flying training school).

Therefore each unit keeps one or two Avros more or less as pets. And these dear old things are pulled out and painted and tuned up to racing form for each successive Pageant. And the unit, from its Commanding Officer to the most junior aircraftsman, regards the unit's Avro very much as a College regards its boat. The winning pilot and his crew of mechanics are the heroes of their unit for the time being.

Much depends on the mechanics, for the engines have to be at a standstill when the word to go is given. After that the pilot has to climb into his machine and the mechanics have to start the engine. Therefore anything in the way of bad tuning or bad adjustment means a delay in getting off the ground. It is all an excellent incentive to efficiency in team work. One only hopes that when the present type of Avro is superseded by the new school Avro with the Lynx engine enough of the new type will be available for each unit to keep one and so maintain this race in the programme of future Pageants.

THE RELAY RACE.

The Relay Race is a similarly commendable competition. The prize is the Challenge Cup presented by Group Captain H.R.H. the Duke of York. It was won in 1923 by Halton, the training school for Aircraft Apprentices. Which also was fit and proper.

Each unit which enters has an Avro, a Bristol Fighter, and a Snipe,—representing the three stages in the development of the Service pilot, the preliminary training machine, the comfortable easily-flown two-seat Service machine and the high-speed single-seat scout. The Avros start first (from a standstill) and fly round the course. They land and the pilot of each machine jumps out and hands a message to the observer in his team's Bristol which has its engine running. The Bristol flies the course and lands and the observer hands over to the Snipe pilot who flies the course and finishes across the line in front of the Royal Box.

Here again team work is everything. The engines must be in perfect tune and the machines perfectly rigged to give perfect control for high flying speed and quick get-off and slow landing. And the pilots of the Avros and Bristols

must be artists to land without losing time and yet so close to their next team-mate as not to run into him.

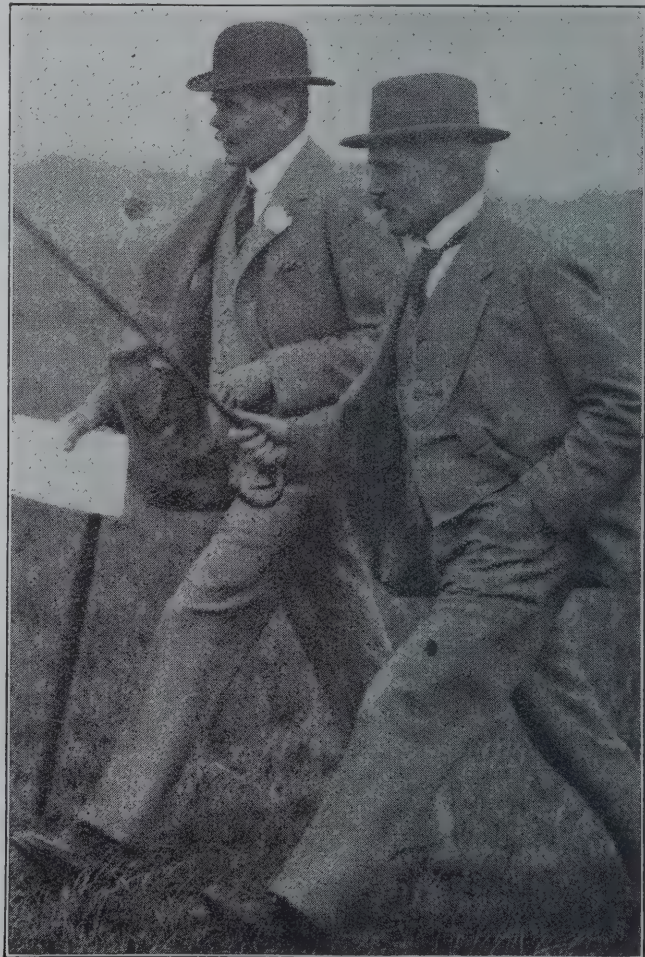
For this event 28 units entered. It is worth while to describe them because they show the variety of the R.A.F.'s activities. They were,—Andover (Staff College), Biggin Hill (No. 56 Fighter Sqdn.), Bircham Newton (No. 7 Bombing Sqdn.), Cranwell (Cadet College), Digby (No. 2 F.T.S.), Duxford (No. 19 Fighter Sqdn.), Duxford (No. 111 Fighter Sqdn.), Eastchurch (No. 100 Bombing Sqdn.), Eastchurch (Armament and Gunnery School), Farnborough (Experimental Station), Farnborough (School of Photography), Halton (School of Aircraft Apprentices), Hawkinge (No. 25 Fighter Sqdn.), Henlow (Aircraft Repair Depot), Kenley (No. Group H.Q.), Kenley (No. 24 Communication Sqdn.), Kenley (No. 32 Fighter Sqdn.), Leuchars (Fleet Air Arm Base), Manston (No. 9 Bombing Sqdn.), Manston (School of Technical Training), Netheravon (No. 11 Bombing Sqdn.), Northolt (No. 41 Fighter Sqdn.), Northolt (Inland Area Communication Sqdn.), Old Sarum (School of Army Cooperation), Shotwick (No. 5 F.T.S.), Upavon (No. 3 Fighter Sqdn.), and Upavon (Central Flying School).

That is a fairly formidable list, and it shows the keenness of officers and men. Some few of these units use Avros and Snipe in their ordinary avocations. Very few use Bristols. The tuning of all these types means an immense amount of work on top of the ordinary work of the unit. Yet every machine was turned out as if for a show. And the amount of fancy painting and polish put onto most of the machines showed that the work was obviously a labour of love.

Splendid as were the performances in the rest of the Pageant nothing demonstrates so well the fine spirit in which the regular work of the R.A.F. is done as does the way in which all these units compete for the two great Challenge Cups. Once more one expresses the hope that when the technical experts at the Air Ministry ultimately allow the practical men to decide on new types to replace the aged and war-worn Bristol Fighter and Sopwith Snipe examples of those new types will be issued to units so as to maintain the continuity of these team races. Nothing could be as good for the moral of the whole Service.

DISTINGUISHED VISITORS.

After these preliminary heats were over the important visi-

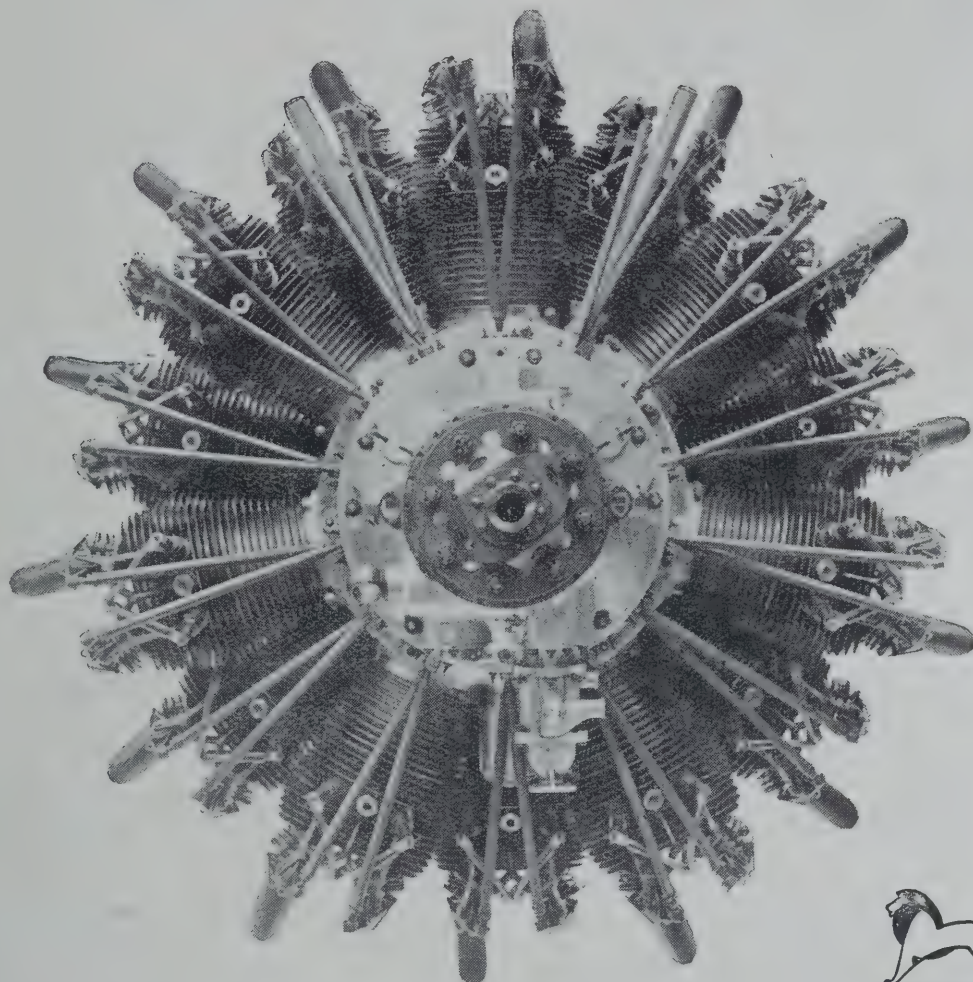


A FELICITOUS PHOTOGRAPH.—Air Chief Marshal Sir Hugh Trenchard and the Prime Minister, Mr. Ramsay MacDonald keep on walking at the Pageant.



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tors began to arrive. The first Royal personage to appear was the King of Denmark, who is evidently keenly interested in flying seeing that he ignored all other attractions and came to the Pageant although he was leaving London the same night. Few English people know the Danish national anthem, but the identity of the visitor spread quickly and His Majesty was received with due respect.

Soon afterwards the Duke and Duchess of York arrived, the Duke in a lounge suit with an R.A.F. tie,—so evidently Hendon has not yet quite attained the status of Royal Ascot. The King was unable to come. The Duke of Connaught, always in the forefront of modern thought where war is concerned, was with the Royal Party.

An enclosure reserved for Members of Parliament was well filled by M.P.'s and their (or somebody's) wives, sisters, cousins and aunts. Mr. Ramsay MacDonald came early and stayed late. Our Air Minister Lord Thomson, the Home Secretary, the Colonial Secretary, the French Ambassador, and quantities of representatives of our Overseas Dominions were present. Of course there were all the Naval and Military and Air officers of all reachable foreign countries. And the place swarmed with Japanese, equipped with the latest and best things in German cameras.

Before the Pageant proper began a very pretty display of flying (not on the programme) was given to the visitors by Flg. Off. Mann on a Snipe and by Flt. Lt. Bulman on a Sopwith-Hawker Woodcock, with a Bristol Jupiter engine. The latter showed itself capable of doing all that the Snipe did in spite of its big engine, and its speed and climb demonstrated that we really are making progress in spite of the experts.

ARMY CO-OPERATION.

The first event on the programme proper was the competition between the four Army Co-operation units of the R.A.F. in picking up messages. This was a very neat and instructive performance. One has never had the honour of meeting that officer, so one can say without prejudice that the credit for having invented or at any rate for having developed the system is generally ascribed to Wing-Commander Gossage.

A message bag is hung on a string about six feet from the ground between two posts. A Bristol with a specially arranged snap-hook trailing underneath the fuselage swoops down and claws up the string complete with bag. The observer hauls the bag into the cock-pit, writes an answer

and as the machine comes round again drops it to the people on the ground.

The idea is to give troops on the ground who are cut off from communicating by telegraph or telephone or wireless or by runners with their main body a method of getting communication. They may want ammunition or supports or they may merely want orders. In any case they signal (by the Popham ground-sheet or other means) to the Army Co-operation machines which patrol the fighting area. One of these machines picks up a message, communicates by wireless to Headquarters, receives a reply, and drops a written reply to the isolated troops.

For competition purposes the time is taken from the moment when the bag is picked up from the posts till the answer is handed to the Umpire at the picking-up station. Each unit enters two machines and the winner is that whose two machines take the least time when added together.

The units which entered were Andover (No. 13 Squadron), Farnborough (No. 4 Squadron), Manston (No. 2 Squadron) and Old Sarum (School of Army Co-operation). It is singularly apposite that No. 2 and No. 4 Squadrons, the heirs and assigns of two of the famous First Four Squadrons which went to France with the British Expeditionary Force in August 1914 and did all the Army's air work during the retreat from Mons and the Battle of the Marne and the advance to the Aisne and Ypres should still be Army Co-operators. And No. 13 is early enough to be entitled to a similar honour, which is perhaps the greatest that any squadron can have.

The flying and message-dropping were excellent and it is evident that in the next war our troops on the ground will be well served. The winners were Old Sarum, in 1 min. 16 secs., with No. 2 Squadron second. It seemed just that the School should beat its past pupils.

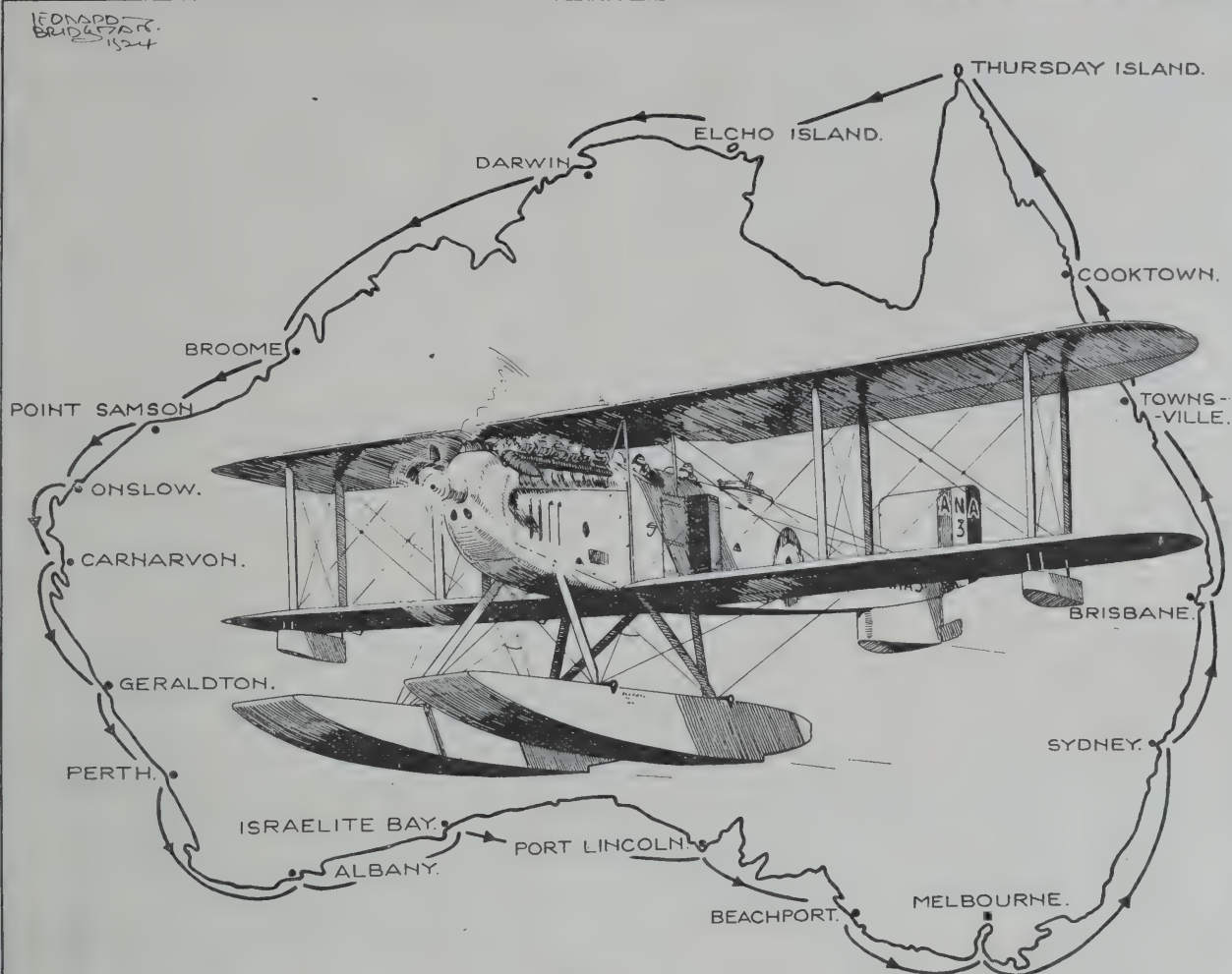
THE AVRO FINAL.

The teams in the final of the Standard Avro Race were:—Digby (No. 2 F.T.S.), Duxford (No. 111 Sqdn.), Farnborough (R.A.E.), Halton, Henlow (I.A.A.D.), Kenley (No. 24 Sqdn.), Northolt (41 Sqn.), Shotwick (No. 5 F.T.S.), Upavon (C.F.S.). Nearly all the machines got away within a few feet of one another and the Halton machine won chiefly by the good piloting of Flg. Off. Vincent, who was flying it instead of Flt. Lt. Stevens. The second machine was Farnborough's piloted by Flg. Off. Barrett, and the third was Digby piloted by Flg. Off. Leach.



(Photograph by Lovell Smith, Richmond.)

A GENERAL VIEW.—In the sky is seen the formation of 39 Squadron. On the left is the Royal Enclosure with the R.A.F. band in the foreground. And in the right background are the good ships John Henry and Slevic.



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4.0 p.m.

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All the engines seemed to be running well and there seemed very little to choose between the speed of the machines. All of which reflected great credit on the mechanics concerned.

THE FLY PAST.

The fly-past of alleged new and experimental types of aircraft was rather more interesting than usual, though nothing like what it might be if in any year a beneficent plague should remove all the Air Ministry technical and experimental experts and leave the Air Staff and its Supply Department to deal direct with the British Aircraft Constructors.

A preliminary walk through the machine park was a trifle depressing, and the machines looked horrid compared with the beautifully clean lines of the French pilots' Nieuports next door, although the said Nieuports are of a design now four years old. As one bright lad in the R.A.F. remarked,—“These new machines of ours *are* damned ugly. They're all over bumps till they look like a lot of Russian churches.”

He is right. Thanks partly to Air Ministry insistence on comic gadgets; and partly to the need for an artist to edit the work of many of our best designers; and partly to sheer abysmal stupidity on the part of our worst designers, there was hardly a machine in the park which could be called handsome and the only ones which could be called pretty were the two tiny light aeroplanes—the de Havilland 53 and the Parnall Pixie, and even they, despite the lure of youth which makes them so attractive, have been spoiled by the Air Ministry's excessive attention. In fact anything less like a Palace of Beauty for grace of line or cleanness of design among its

inhabitants than that aircraft park it would be hard to imagine.

The machines flew past in the following order:—

(1) The Gloucestershire Grebe (Armstrong-Siddeley Jaguar 380 h.p.). Quite a nice neat biplane designed by Mr. Folland a year or more ago and very like a British Nieuport Night hawk or a Gloster Mars VI.

(2) The Hawker Woodcock (Bristol Jupiter engine 400 h.p.). About the one really new machine of the lot. It is a single bay biplane, a second edition of the two-bay type and has quite a performance. The opening-and-shutting jackets over the air-cooled cylinders are rather fascinating. They were first tried (without the mousetrap) in 1922.

(3) The Bristol Bullfinch (Jupiter engine). Illustrated in this paper a year or more ago. Designed by Capt. Frank Barnwell before he left for Australia. It is a parasol monoplane very ugly, and, one is told, not nice to fly. The Bristol Co. and Capt. Barnwell can do and have done very much better than this. One hopes its successor may soon be seen.

(4) The de Havilland Dormouse (Jupiter engine). A good useful replacement for the 1917 type Bristol Fighter, but apparently spoiled by having been equipped with various Air Ministry excrescences which have spoiled its performance.

(5) The Vickers Venture (Napier Lion 450 h.p.). Very like the Vickers Vixen of last year. A good-looking two-seat biplane with a good performance. One assumes that it was the Air Ministry which insisted upon putting several square feet of radiator surface under the fuselage so as to jamb the air



IN THE AMUSEMENT PARK.—From the top, left and right:—The Gloucestershire Grebe (Jaguar); the Handley Page (Eagle and two Pumas); the Vickers Virginia (two Lions); the Vickers Venture (Lion); the Hawker Woodcock (Jupiter); the Avro Andover (Condor); the Bristol Bullfinch (Jupiter) and the De Havilland Dormouse (Jaguar); and the Parnall Possum (Lion).

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England to Constantinople	2,160 miles
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England to Finland	1,100 miles
England to Warsaw	1,050 miles
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between the undercarriage struts and then put a species of cigarette tin on the top of the upper plane to act as a water-header when wing-radiators would have done it all at once. The amount of polished aluminium on the front of the machine prompted a ribald pilot to ask whether a tin-opener was a Service issue with each of the type.

(6) The Handley Page Hyderabad (two Napier Lions). Practically the W.8 of 1920, re-arranged as a heavy bomber with a nose such as only Cyrano de Bergerac could describe; still it seems to perform quite well.

(7) The Vickers Virginia (Two Napier Lions). A considerable enlargement of the old Vickers Vimy. Described as a heavy bomber. The R.A.F. say that with the long thin fuselage it is not as fast as the Vickers Vernon with the sausage-like passenger-carrying fuselage, so in Iraq they transform their Vernons into bombers by cutting holes in the floor and just carry on with them.

(8) The Avro Andover (Rolls-Royce Condor 700 h.p.). An aerial ambulance, nicknamed by the R.A.F. the "Blood Wagon." A single-engined biplane with a cocked-up nose resembling an Aldershot and an abnormally long sausage-shaped body. Easily the ugliest machine the Avro firm have ever built. One pilot eyeing it contemptively remarked:—"Yes! That's it. The thing looks just like a sand-eel with that long silver body and up-turned nose." And it does. But of course, being an Avro it flies well enough.

(9) The Bristol Brandon (Jupiter). Only appeared on the programme. It is the old Bristol 10-seater re-furnished. For some reason unexplained it was not at Hendon.

(10) The Parnall Possum (Napier Lion). A very interesting experiment and no pretence to being anything else. A triplane (designed and built three years ago) with a single engine (not two as per programme) in the fuselage driving two tractor-screws, one on each middle wing. A pretty job and well made. But one doubts whether gearing can ever pay for its own weight. This machine also has a steerable and brakeable tail wheel which has proved very effective.

(11) The Handley Page W.8.F. (three-engined). One Rolls-Royce Eagle (360 h.p.) in the nose and a Siddeley Puma (240 h.p.) on each wing, 840 h.p. in all. The same as supplied to Belgium a few weeks ago. One of the few machines indicating real progress in design and practice.

(12) The De Havilland 53 (20 h.p. Blackburne Tom-Tit). One of the R.A.F.'s new training experiments. In appearance the same as the one which was at Hendon after the Lympne meeting. In reality much heavier and with a much lower performance and a less reliable engine, thanks to the interference of Air Ministry experts in the design and manufacture of both machine and engine. Nevertheless she flew well and delighted the crowd.

(13) The Parnall Pixie (20 h.p. Blackburne Tom-Tit). The winner of the speed prize at Lympne. Also flew well and divided with the D.H.53 the affections of the crowd and of the pilots as well.

All the machines flew with ease and as none of them carried anything like its service load, so the public was not entertained by the spectacle of machines struggling to unstick from the ground as one is so often at service aerodromes. And anyhow the surface at Hendon is bad enough to bump almost anything into the air.

THE FRENCH DISPLAY.

When the last of the New and Experimentals had landed itself people in the public enclosures and in the machine park alike sat up and began to take notice. "Now we shall see something!" was the general expression. The five little brown Nieuports taxied out into line across the aerodrome facing nicely head to wind, the leader in the middle opened out his engine and away they went in a very pretty Vee formation. They turned round a mile or two away and came back down wind still in good but not close formation. Then the formation broke up and each pilot did as he pleased well apart over different parts of the aerodrome. They looped neatly. They rolled commendably. They did a few spins very high up, for a Nieuport they say is difficult to recover if it gets out of control. And then they landed independently.

In courtesy one must say that each officer showed himself to be a competent pilot. But as a display one must say truthfully that it was disappointing. Nobody desired hair-raising stunts or reckless flying to emotion the crowd. But the prevailing opinion was that any flight of any R.A.F. single-seater squadron could have made a better demonstration.

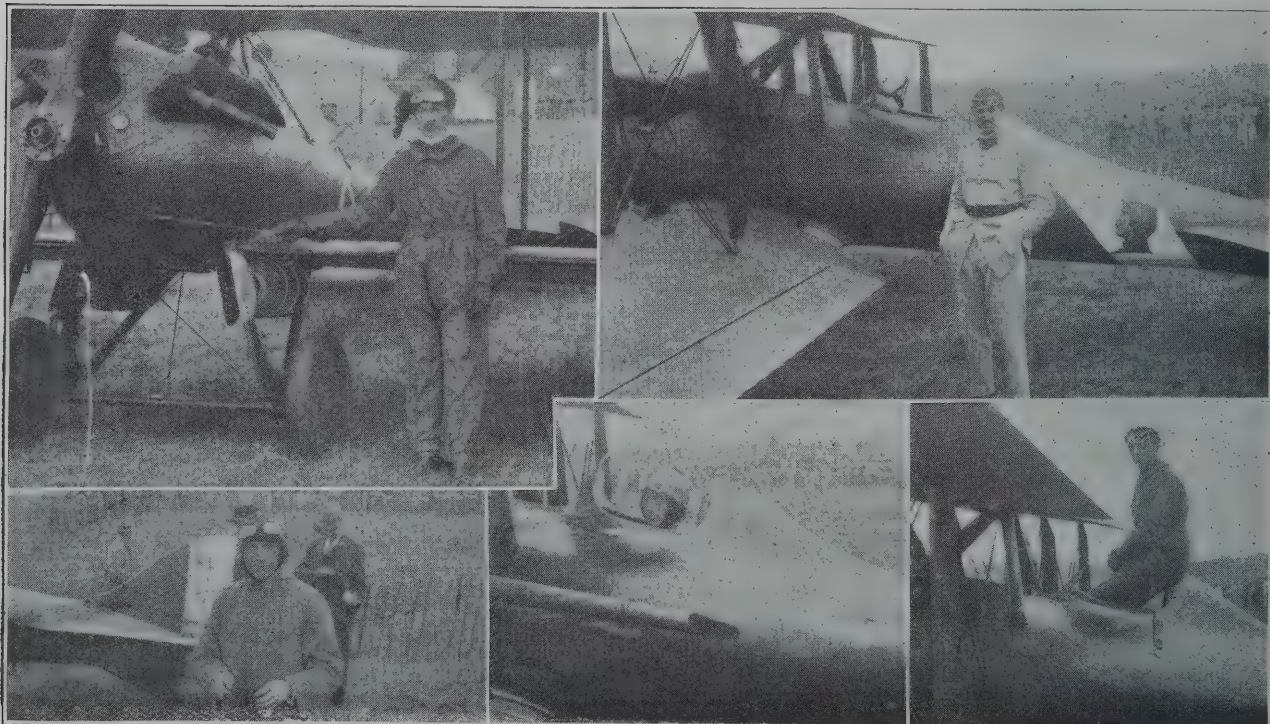
The reason was explained by an R.A.F. officer who had been in close touch with our visitors. It seems that each French officer belongs to a different unit and so they had not been able to practise formation flying together. Many of the best French pilots are not commissioned officers and consequently social difficulties prevented the sending of a complete *escadrille*. These five officers were therefore chosen from the different units of the *Deuxième Régiment de Chasse*.

It is also possible that, having heard the previous evening that the R.A.F. pilots had been ordered by the Chief of the Air Staff to refrain from sensational flying which would provoke dangerous competition, our visitors with traditional French courtesy also refrained from showing us their best form as individuals. If that be so one thanks them for their forbearance and one expresses one's admiration for their self-restraint, a quality as admirable in a soldier as is the greatest bravery. Certainly nothing they did was in the least likely to stir up a spirit of envy or of emulation.

THE RELAY RACE.

In the Relay Race the teams left in the final were:—Cranwell (Cadet College), Digby (2 F.T.S.), Halton, Henlow (I.A.A.D.), Kenley (24 Sqdn.) and Upavon (C.F.S.).

This race ought to have been won by Halton as was the Standard Avro Race. The Halton Avro got away a couple of hundred yards in front of anything else and was if anything



OUR GUESTS. -Commandant Gastin, in command, is in the lower left hand corner. The other officers are Lieutenants Robert, Dutruel, Gaillard, and Volmerange.

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OUR GUESTS.—The Nieuports of the French pilots getting off and in formation and ready to start.



still more ahead coming into the aerodrome. Unfortunately the pilot, trying to make a very slow landing, landed too far away from his Bristol and had to waste time taxiing into position. The result was that the Halton Bristol got away only very little in advance of the next machine and at the end of the lap the Halton Bristol was third instead of first. However, probably through doing a very good landing and thus saving time, it enabled the Halton Snipe to pull up some of the loss.

The result was that at the finish Kenley were first, Halton second and Upavon third. The Kenley team were composed of Flg. Off. Hamilton (Avro), Flt. Lt. C. N. Lowe (Bristol Fighter), and Sq. Ldr. Maxwell (Snipe).

Incidentally it is interesting to note that the Kenley Group Headquarters team, which unfortunately did not get into the final, was composed of Flg. Off. Strudwick (Avro), Air Commodore Samson, C.M.G., D.S.O., A.F.C. (Bristol), and Wing Cdr. G. F. Pretymann, D.S.O., O.B.E. (Snipe). These two latter officers were senior to any other competitors with the sole exception of Wing Cdr. W. R. Read, M.C., D.F.C., A.F.C., who was flying the Halton Snipe.

None of the other pilots were above the rank of Squadron leader though to the credit of that rank it must be said that eleven squadron leaders were piloting machines.

A noteworthy fact also is that the Bristol representing No. 11 Bombing Squadron Netheravon was piloted by Sergeant W. R. Gillmartin, who was the only N.C.O. pilot in any of the competitions. There were twenty-six flight-lieutenants piloting machines out of the eighty-four pilots employed in the Relay Race.

For the benefit of the forgetful one feels bound to remind them that a Flight Lieutenant ranks with but after a Captain in the Army, that a Squadron Leader corresponds to a Major, that a Wing Commander corresponds to a Lieutenant-Colonel and an Air Commodore corresponds to a Colonel Commandant (formerly Brigadier-General). Thus it may be seen that officers of high rank and mature age do fly in the R.A.F. in spite of the general impression that flying is entirely a young man's job. And readers will do well to remember that flying in a Relay Race calls for special skill in starting and landing and is by no means as simple as ordinary squadron flying from an aerodrome.

THE EMOTION OF THE DAY.

The great event of the day was the sixth event described in the programme as "Wing Drill by Two Squadrons," with the additional note "Each squadron is represented by nine aeroplanes, the combined eighteen aeroplanes representing a Wing." In war eighteen aeroplanes go to a squadron and three squadrons at the least make a Wing. After seeing this representation of Wing flying one would dearly love to see a full wing of 54 machines at drill. Even as it was the 18 machines provided the most thrilling sight ever seen at an R.A.F. Pageant.

No. 39 Squadron at Spittlegate (Sq. Ldr. Whittaker) and No. 207 Squadron from Eastchurch (Sq. Ldr. Gaskell Blackburn) had been practising together at Spittlegate near Grantham, on De Havilland 9a two-seater general purpose biplanes, for the past few weeks. Their display on Saturday showed what the ordinary flying officer of the R.A.F., not specially selected, can do when he sets to work to train for a job.

The Foot Guards of the British Army have for long held the reputation of being smarter in their drill than any troops in the World. The airmen of the R.A.F. are now judged by the most experienced soldiers to be smarter than the Guards. If any nation had an air force which compared in the air with

the Guards on the ground then 39 and 207 would be prepared to prove that they were better. As it is, those two squadrons stand (or rather fly) alone as exponents of what formation flying can and should be.

A few minutes before the appointed hour the 18 machines taxied out onto the aerodrome and arranged themselves in perfect line in six formations of threes. That is to say each set of three stood so that the wings of the centre machine were about level with the nose of the machine on each side of it. Thus the six section (or flight) leaders were in line with each other across the aerodrome with their twelve followers in line with each other half the length of their machines behind them. This in itself was an excellent example of ground manoeuvring, for a big heavy old-fashioned brute like a 9a does not handle on the ground with the facility of a Ford.

Thus they stood for five minutes, while the eighteen big engines turned over slowly making a noise like a giant grumbling.

Then, on the stroke of five, somebody fired a Verey light and the giant's grumbling swelled in one colossal organ note to a roar such as very few of that enormous crowd can ever have heard before. The eighteen big machines surged slowly



OVER HEAD.—The formation of No. 207 Squadron passing over the enclosures. (To see this picture at its best the paper should be held above the head.)

DURABILITY

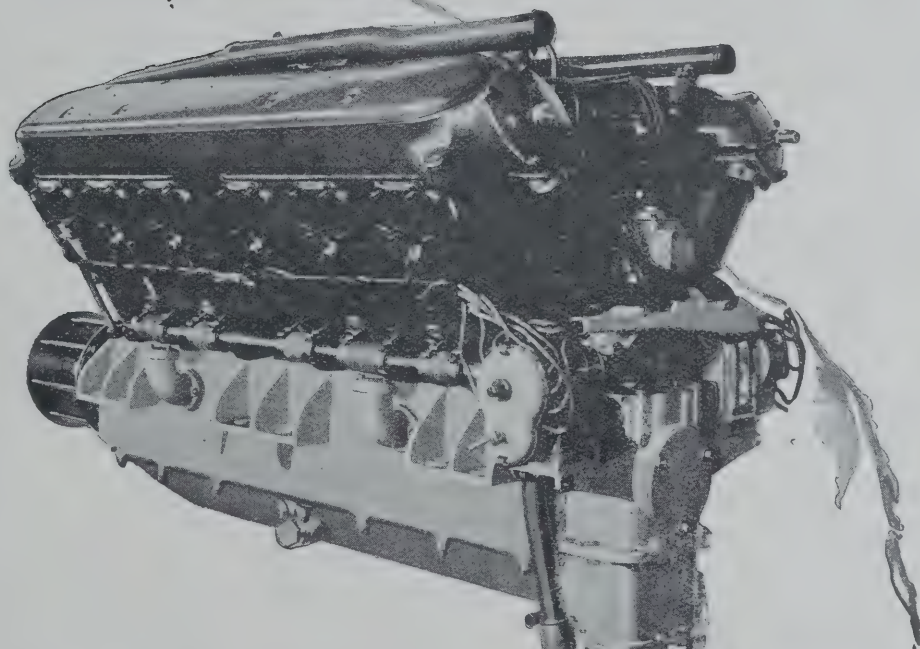
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THE DOUBLE FORMATION.—The two formations of 39 and 207 Squadrons crossing in opposite directions one above the other. This was one of the most impressive sights of the whole Pageant. (To see the picture at its best it should be held over the head.)

forward in one steady wave, leaders and followers keeping their line almost as perfectly as a well-drilled battalion on parade. Faster and faster went the wave, higher and higher rose the pitch of the engine roar as the speed increased. And then, as one machine the eighteen took to the air together and swept gloriously over the trees at the far end of the aerodrome.

For a moment there was a silence in the crowd as the nearer squadron swept round to the left and the further wheeled to the right. Then there was a sort of collective gasp, and then the crowd cheered and people with motors hooted and everybody made noises expressive of appreciation, admiration, joy and such-like primitive emotions. One can never recall having seen so many people so much moved. For once an English crowd forgot its traditions and showed openly that it was proud to be English.

And the people who caused all this emotion were just thirty-six very ordinary officers and men of His Majesty's Royal Air Force. You can find something like thirty-three thousand of much the same kind all explained in the Air Force Estimates. The people of this country do not quite realise how good is the average quality in the R.A.F.

Still, it really was rather a fine sight. At one's own advanced age one finds it difficult to experience a real thrill. Somewhere away back in one's memory, left over from the Victorian era, is a vision of a full brigade of horse artillery at full gallop across a plain (probably Laffan's), a vast wave of brown and bay horses, and glittering gun-wheels, all topped by the blazing gold and blue of the elect of the Royal Regiment. Until 39 and 207 rose in one long line of silver off the green of Hendon aerodrome one has not felt quite that same thrill again.

After a certain display somewhat earlier an officer of one of these squadrons said: "If my crowd don't give a better show of formation flying than that, I'll have your car repainted—and God knows it needs it." We met again after the show and one assured him that the editorial Talbot would not be repainted at his expense. If anybody has ever seen better formations than 39 and 207 one will be glad to hear when, where, how and why?

DRILL IN THE AIR.

After wheeling left and right the two squadrons fell into a new formation and semi-circled the aerodrome. One of the three of each squadron assumed the lead with another three behind and the other three behind that again. That is to say each would have been a square block of nine machines but for the fact that the middle three were each half a machine's length in advance of the machines on each side of it, so that the formation was really three broad-arrows one behind the other.

Then in a triple broad-arrow the two squadrons met head-on right over the thickest part of the crowd so that everybody had to look vertically upwards and had no way of judging the height of the squadrons in relation to one another. To many it seemed as if the machines of one squadron flew between those of the other. In reality one squadron was several hundreds of feet above the other.

After they had thus crossed one another each squadron fell into line-ahead and came into the aerodrome in that formation. As they approached, the leading machine of each squadron descended and the following machines climbed till they formed a kind of "Stairway to Paradise," so to speak. Then the leading machines slowed and the following machines increased speed till one was directly above the other like the rungs of a vertical ladder. And thus one after the other the two squadrons flew across the front of the crowd, which once more showed its joy by weird noises.

Then they broke formation again and flew round in two great circles, each machine chasing the tail of its next ahead. Then they re-formed and flew across in perfect line abreast. And after that they assumed again the three-arrow in line abreast formation and landed, 207 first and 39 afterwards.

One machine of 207 broke a tail-skid and had to taxi in slowly, which baulked the landing of one of 39's pilots, who flew on instead of landing and came round again behind his squadron. But every man of each squadron was as exactly in position when they came in to land as he was when they took off. It was a very perfect exhibition of skilful flying.

One looks forward to seeing the same kind of drill done at the next Pageant by people on modern machines with flap wings which will lift them and let them land at low speeds, and with engines which answer their throttles properly and do not need to be juggled from wide open to nearly shut in alternative bursts as do the antiquated Liberty engines of the gas. We have seen enough of these ancient aircraft in the R.A.F. and it is time they were all replaced.

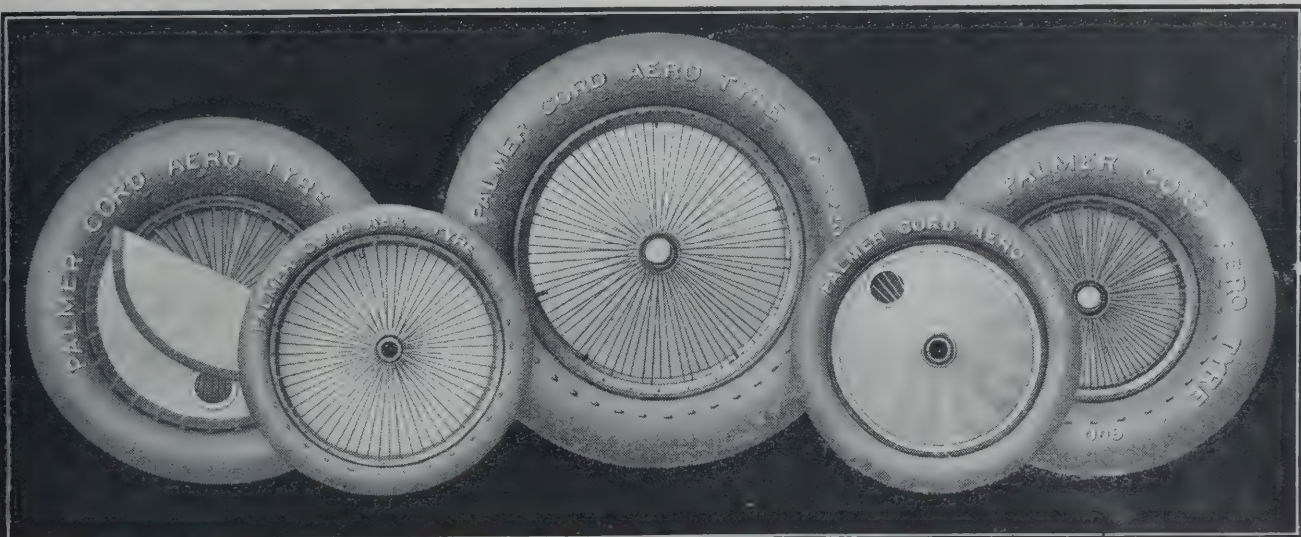
THE PERFORMING SNIPE.

Following the gas came an equally perfect show in its own way by five Snipe from the Central Flying School, where the Staff instruct instructors for the F.T.Ss. how to instruct. Of course everybody who had been to previous Pageants thought



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300×60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	"	148	220.	80.	Central
450×60	30	89.	31.75	Central	650×125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
575×60	21	160.	28.	Central	750×125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900×2.0	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
600×75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	800×150	82	185.	55.	135/50	1100×220	134	220.	66.67	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	"	136	250.	80.	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	1250×250	133	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
700×100	77	178.	44.45	132/46	1000×150	169†	185.	55.	135/50	1500×300	115	304.8	101.6	Central
"	92	185.	55.	135/50	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	95	185.	55.	Central	"	131	220.	66.67	Central	1750×300	139	400.	152.4	Central
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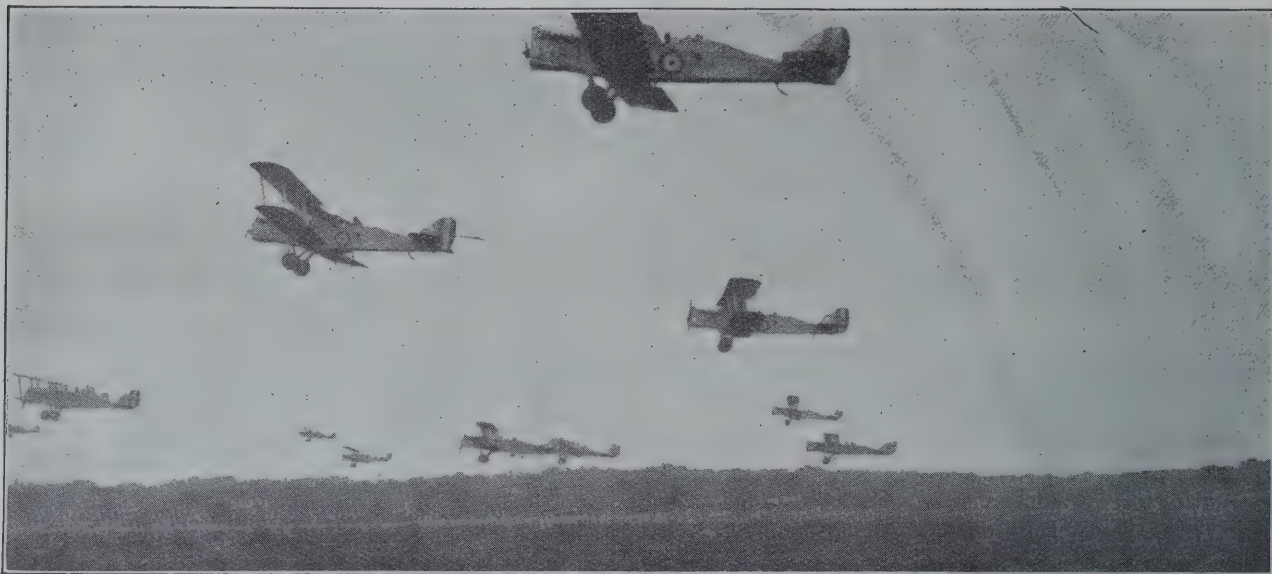
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ON THE WAY.—Eleven of the eighteen D.H.9as of 39 and 207 Squadrons, just getting off at Hendon.

that they had seen everything Snipe could do in combination when Flt. Lt. Draper was the formation leader. But the new formation under Flt. Lt. Down, A.F.C., with Flg. Officers W. E. G. Mann, D.F.C., H. A. Hamersley, M.C., J. N. Boothman and E. B. Forster as his followers, is still more skilful and even neater.

They never did anything that looked like stunting and yet the things which they did quite quietly and apparently as a matter of course would look most dangerous if done roughly by less able pilots. Their loops and rolls and spins were done with the gentle assurance of Sq. Ldr. Longton and his pet Camel. And it must be remembered that a Snipe is practically an enlarged and faster Camel with all the Camel's vices proportionately exaggerated. It is in fact a very nasty flying machine whose only virtue when it was produced six years ago was that it was fast, as speed went then. Yet we have gone on using the beastly thing all those six years although we have had the Nighthawk and its successor the Mars VI and now the Grebe all that time, machines which are miles an hour faster and go where the pilot puts them without any need for inversion of mental reflexes to keep them in control.

It was quite pretty to see the five Snipe loop in line ahead so that it appeared as if all five were on the path of the same loop together. But by far the prettiest trick of all was when they flew down wind in a broad-arrow formation, all did a half loop in formation onto their backs, flew slowly against the wind right across the front of the crowd still on their backs and in formation and then returned to their proper upright positions with a half-roll and continued flying in the same direction, instead of by the more usual method of letting their noses drop and doing the rest of the unfinished loop so that they would come out in the other direction.

Also their spinning down for a couple of hundred feet and coming out of their spins still in formation was astonishingly neat. Certainly these are the people who are fitted to instruct instructors. One hopes that our French visitors watched this little display with advantage.

GROUND STRAFING.

The penultimate event was a pretty exhibition of low bombing by five Snipe of No. 25 Fighter Squadron piloted by Sq. Ldr. A. H. Peck, D.S.O., M.C.; Flt. Lt. E. B. Mason; Flt. Lt. O. Long, D.S.O.; Flg. Off. C. Maitland, D.F.C.; and Flg. Off. P. J. Clayson, M.C., D.F.C. Their target was

a mock-up tank in the middle of the aerodrome, and if it had been a real tank it would have been very uncomfortable as a residence.

They dived in turn from 300 feet or so with a rattle of machine guns, each dropped a bomb in passing, wheeled upwards to the left and repeated the dose five times. At least four of the smoke-bombs which were used scored direct hits and all were within twenty yards except two, and they were within fifty yards.

If the target had been troops on the march they would have been compelled to break and scatter. No soldiers could maintain formation under such an attack. And properly armoured ground-strafting aeroplanes ought to be safe against rifle fire. Which is why one believes that the next war will be largely the affair of mounted infantry. Men on foot could not scatter quickly enough to escape heavy casualties nor could they close again after the attack quickly enough to avoid seriously delaying their march.

THE WAY THEY HAVE WITH THE NAVY.

The last event is always the comic show of the Pageant and is designed to bring down the house, in all senses. This year it was more ingenious and funnier than ever. The scenic artists, property men, perpetrators of "effects" and so forth simply excelled themselves.

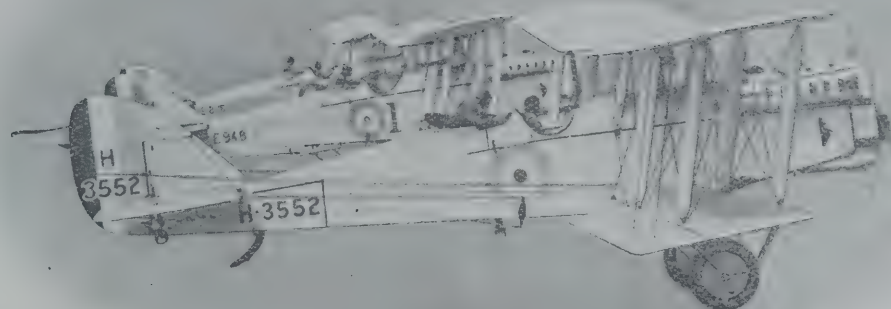
All the afternoon we had been gazing across the aerodrome at the broadside of a dirty merchant ship named John Henry of Newcastle, to which place she had presumably been carrying coals. And right across her bows lay a bright blue liner labelled Slevic, with lovely white boat decks and bridges and upper bridges, whose starboard bow was presented to our view. So perfect was the scene-painting that it needed an effort to convince people that the two ships were merely flat hoardings and that all four masts were actually in one line, instead of the line of the Slevic's masts being almost at right angles to the Newcastle's as they seemed to be.

Where the name Slevic originated one cannot discover. Whether it was intended to be Slavic (meaning Russian) and was slightly altered to avoid hurting the feelings of the Bolshie-Soviet representatives in London and our Communist Members of Parliament or whether it was intended to be Slesvig and was altered to avoid hurting either our guest the King of Denmark or our newly-found friends the Germans, one will not attempt to guess. But it was a very pretty ship, and from the enclosure one could see lots of



AT THE PAGEANT. — The Snipe formation from the Central Flying School flying past the enclosures before beginning their combined acrobatic performances.

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the crew upstairs at the sharp end leaning over the palings. [NOTE BY SUB-ED., for Naval Officers only:—He means on deck leaning over the rail forr'ard.]

Anyhow, the scheme was that the Slevic, an armed merchant cruiser, had sighted the British tramp steamer John Henry and had ordered her to "down tools," or "heave to," or "stop engines," or "avast there," or "belay ye lubbers," or "put on your brakes," or whatever these sailor-folk say when they mean "HALT."

The John Henry duly halted and an amphibian picket-boat put out from the Slevic and came smartly alongside the tramp in spite of the surging hills and hillocks of the aerodrome. Meanwhile a frenzied gentleman on the bridge of the John Henry waved wild arms to Heaven, whether like Ajax defying the lightning or in mute appeal to whatever Gods there be or in proper semaphore code to the Coastal Area R.A.F. one could not be quite sure.

Of course an ordinary pigheaded Geordie skipper would just have stepped on the gas, or have opened his throttle, or have gone full steam ahead (put it how you like) and would have rammed the Bolshie Slevic with the momentum of a few thousands of tons of coal behind his stem-post, and would have chanced what happened afterwards. But that would have spoiled the Coastal Area's picnic—for it was that section of the R.A.F. which did the set-piece.

A REAL NAVAL ATTACK.

Therefore a Supermarine Seagull Amphibian, which had gone off on patrol just before the Snipe so brutally attacked the inoffensive tank, sighted this outrage on the high seas of Hendon (ask the lad who bounced when landing the Snipe whether they were high seas or not) and she, instead of merely wirelessly "Naughty, naughty!" in international code to the Slevic, must needs go and bleat all about it to the Coastal Area's machine park up at the back of the tram-depot. Whereupon the Coastal Area, being still sailormen at heart (one is told in confidence that some of them still get their uniforms from *Naval Outfitters*), instead of sending one big bomber to heave the Slevic out of the water (or rather grass) and break her back, did the job in proper ship-shape Navy fashion.

First they sent three beautiful Fairey Flycatchers who machine-gunned the Slevic's vertical decks till not a fly could find a hold on them. The way those Flycatchers screamed as they dove (or dived) at the ship was heart-rending—stream-line wires make more noise than a syren. And they looked as well as sounded amazingly hostile. Personally one never wants to be one of the flies they are out to catch.

Then they launched a torpedo attack with five perfectly good Blackburn Darts. The torpedoes, ever so fat and shiny, dropped into the long grass and bounced along looking like pigs hunting for truffles till they disappeared in the jungle. If they had been real torpedoes they would have been enough to sink the *Hood* and most of the turned-down dock at Singapore as well. Which, of course, is just how the Navy would set about sinking an armed merchantman without a plate on her ribs which would stop a machine-gun bullet.

A moment after the torpedoes had gone truffle-hunting there was a lovely explosion under the bow of the Slevic and most of her nose disappeared in a spout of smoke and water and mud. Then there was another outburst of mud and flame amidships and half the Midland Railway appeared through her side. Then she caught fire all over and looked like the Fifth of November. And then (as her putative magazine went up) there was the best bang one has heard since the Zeppelin dropped the big bomb in Piccadilly and blew Swan and Edgar's model ladies into Regent Street. The whole of the Slevic disappeared into one little heap of sticks on the ground except so much of her and of the aerodrome as went sailing over Mill Hill and Hendon Village.

There is a suspicion that through excess of zeal someone had blundered and doubled the charge which blew up the Slevic. At any rate one heard and felt two distinct explosions, almost but not quite simultaneous. And an R.A.F. officer who was well away at the back of the Slevic in the two-shilling enclosure watching the effect said that chunks of real estate hurtled overhead at a rate of knots. But fortunately none fell in the enclosure and nobody was hurt. And it was a lovely bang.

The torpedo bursts were most ingeniously arranged. A petrol tin full of gun-cotton was put in the bottom of a pit six feet deep close to the bow and side of the Slevic and the pit was filled with water. So when it was blown up (by an electric wire) one got the proper effect of an under-water explosion—only it would have to be Mersey or Liffey water to get quite the same effect.

FINIS.

After that came the usual struggle of excited motorists to get through the bottle-necks at the gates. Here the traffic was beautifully regulated by amazingly amiable policemen, mounted and on foot. Personally one thought it much better fun to sit quietly for half an hour and chat to sundry R.A.F.

people and watch the machines coming out of the machine park to my home. Ultimately the editorial Talbot extricated herself and with eight on board had a thoroughly enjoyable traffic-dodging scrap with a bilious-coloured Hispano-Suiza all the way down the Edgware Road to Bayswater, where our way and that of the three cheery lads in the Suiza parted company.

And so ended the best Pageant yet. From the President, Air Chief Marshal Sir Hugh Trenchard, Chief of the Air Staff, down to the latest-joined aircraftsman in the machine park, everybody who had to do with the Pageant deserves congratulations. The organisation was perfect. Every machine was in its place, and every machine came out at the right moment. Every event started and finished to the tick of the clock at which it was timed in the programme, for which special thanks are due to the Flying Committee, Air Commodore Dowding, Sq. Ldr. Roderick Hill (now a full-blown Staff Officer) and Flt. Lt. C. R. Carr (whose megaphone voice must have been acquired in the Antarctic). There were no long waits between events. There were no mishaps of any kind, one did not even hear of a mechanic being kicked by an angry airscrew.

The catering was very good indeed, considering the crush. In fact one hardly heard a grumble from anybody, except from some few who know too much about flying and want every event to be something absolutely new each succeeding year. If some of these would send along suggestions one knows that the Pageant Committee would be very glad to consider them.

Next year the Pageant may easily be made even a greater success, for all the people were so pleased this year that they will all come again and will bring their friends. But next year we must have something new instead of Snipe and Bristols and D.H.9as. And—just in case, you know—the pilots and observers ought to wear parachutes. We cannot better the organisation nor the personnel. But we can easily improve the material and so make a still better show of what is even now the finest show of its kind in the World.—C. G. C.

PAGEANTRY.

It has been frequently asserted in this paper that the Navy has not progressed since the Battle of Trafalgar. It would seem from this year's Pageant that the Royal Air Force had their own Trafalgar on the occasion of the last Pageant for so far as one could see there has been no progress made either in machines generally, flying or organisation since last year and new ideas were conspicuous by their absence. It is true that it would be very difficult for there to be any improvement in the standard of flying which last year reached a level which it seems almost impossible to surpass.

The unfortunate thing about this year's programme is the fact that the events which were left in the programme were the events during which last year people visited the tea tents and bars and the events cut out were the ones for which people left those retreats. One missed such things as the crazy flying and the antics of the big twin-engined machines and the individual aerobatics. Quite the best turns of the day were the impromptu performances of Mr. Mann and Mr. Bulman on the Snipe and Woodcock before the Pageant proper opened. [These performances were certainly very good but as spectacles and as actual examples of skill they did not quite reach the level of the Snipe and D.H.9a formation flying.—ED.]

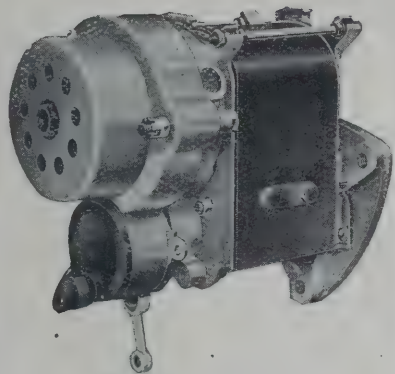
Taking it all round this year's show was very much like the last one and the four which succeeded it though not quite so interesting. It opened in the usual manner with the Editor of THE AEROPLANE having his usual row with the police about parking his car. In fact when one met him at the entrance he was so busy rehearsing his part to himself that he was unable to speak to anyone.

One thing that was undoubtedly done better than last year was the arrangements for the machine park. Any one who could show any shadow of claim to be allowed in this park was admitted with friends whereas the unauthorised were rightly kept out. At all times there was a seething mob trying to gain admission to this park and throughout it the officer in charge of the gate kept smiling and fought back the unauthorised.

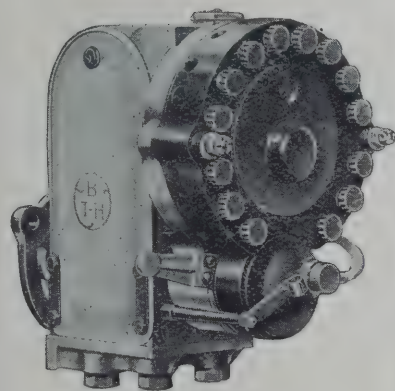
The "New Machine" Park would have been better styled the "Amusement Park" for it was difficult to find any really new machines apart from the Hawker Woodcock and the D.H.42 or Dormouse. Nevertheless in this park there was much to amuse.

The Avro Andover ambulance was a source of joy to all the ladies, as also was the three-engined Handley Page. A Squadron-Leader whose reputation was built up as a scout pilot and racing pilot proudly showed people round the vast Vickers Virginia, a squadron of which he is to command shortly at Worthy Down. In this machine there is a gunner's cockpit underneath wherefrom it can be defended under the tail. The curves of this cockpit are made to

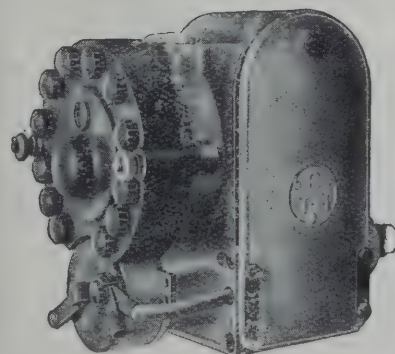
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- 1921** First, Second and Third Places secured in Aerial Derby. Also First and Second Handicap Prizes.
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- 1922** First, Second and Third Places secured in Aerial Derby. Also First, Second and Third Places in the August Open Handicap.
 Schneider Cup secured by British Flying Boat at Naples.
- 1923** First and Second Places in the King's Cup Race. First, Second and Third Places in the Aerial Derby. First and Third Places in the Aerial Derby Handicap.

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fit the front of the human anatomy and this one appeared specially to be designed for the largest of lordly aviators. The Vickers Venture looked rather as though it had been intended to be covered entirely with sheet metal and that after covering the nose the constructors had either got tired or run out of tin.

The only real thrills provided by the complete Pageant were the frustrated attack on John Henry of Newcastle by the Virginia when taking off (surely this machine will have to be rechristened "Blossom"), and the landing of the Hyderabad which flew into the ground and looked as though it were going to turn onto its nose. Perhaps this was the reason why Mr. Handley Page was looking so disconsolate and was

only able to cheer himself up with artistic efforts with the pencil.

One's general impression after the Pageant was that it would have made a delightful garden party if there had not been a lot of old aeroplanes buzzing about to spoil it.

The wing drill of the gas was as usual wonderful to behold. If the quality was no better than that of last year it was certainly better in quantity and the performance of the Snipes was every bit as good as usual. The finale was as usual except that boats took the place of forts and the whole thing ended in smoke as usual. The only unusual event was the lamented absence of Sq. Ldr. Wells, his Handley Page and his daylight fireworks.—G. D.

PRE-PAGEANT FUNCTIONS.

The Independent Force (R.A.F.) Annual Dinner.

The Sixth Annual Re-Union Dinner of the Independent Force R.A.F. was held at the R.A.F. Club on June 24. His Royal Highness the Duke of York honoured the company by being present and Air Chief Marshal Sir Hugh Trenchard was in the Chair.

Sir Walter Lawrence, G.C.I.E., G.C.V.O., C.B., after the usual Royal toast, proposed the toast of the Independent Force in an unusually fine speech.

He suggested that the greatest things in life were enthusiasms. He had two great enthusiasms. The first was a very old one, that for the Royal House of England which was the one master-link of the Empire. The second was for the Royal Air Force. A speech about the Royal Air Force should be as light as the element in which the R.A.F. operated.

His experience of Sir Hugh Trenchard was that he never did anything without a reason. When he believed in a thing he believed in saying it over and over again even to the extent of damnable reiteration. By saying a thing over and over again one made people believe that it was true. That was probably why he, Sir Walter, had been set so often the task of proposing the Royal Air Force. Incidentally he remarked that politicians advocated the same doctrines so often that they themselves came to believe in them.

Continuing he said that so long as the R.A.F. remained under its present leaders the Empire could depend on having a strong and efficient Air Force. He had read that we could not have a strong Air Force except with the help of strong Civil Aviation. He himself believed that the R.A.F. must go its lonely way and must not heed the precedent of the Navy, which relied on the Merchant Service for its strength. Nevertheless he wished success to Civil Aviation and said that it would succeed if it paid.

He himself would sleep soundly if the R.A.F. were as strong and efficient as it was in 1918. The foundations of the R.A.F. had been so well and truly laid by Sir Hugh Trenchard that there was always room for expansion.

Sir Walter said that during the War he had done a lot of thinking about what would happen after the War. He saw that we should add to the White Man's burden which we had to carry and he wondered how the tribes of our new territories would be policed. The R.A.F. had found the great economical and humane solution of the problem.

Referring to the gallant efforts of the British aviators who are attempting to fly round the World he remarked in a *lapsus lingue* that Akyab was "not a seaport reside." [That is a phrase which deserves to come into general use to distinguish such places from mere seaside resorts.—C. G. G.] He said that the quality of dogged English endurance which had taken the expedition so far was the tradition of the R.A.F.

Sir Hugh Trenchard, before beginning his speech in reply, read a cable from Vancouver, British Columbia, from Three of 55 Squadron, signed Tanqueray, Gorrill and Miller, wishing success to the Dinner. [Excellent, 55.—C. G. G.]

Sir Hugh said that last year he was unable to make any statement about the R.A.F. but now international circumstances were such that he had more freedom. Last year the then Prime Minister had said that he must have a Home Defence Force adequate to deal with the biggest Air Force within striking distance. The present Home Defence scheme had been worked out nearly four years ago and it had been developed unaltered by political changes.

The scheme was for 52 squadrons. At the present moment we had 37 flights, constituting 4 full squadrons and 11 partly formed squadrons. The new squadrons would bear numbers associated with squadrons which had distinguished themselves during the War 1914-18 (loud applause).

Referring to the expansion of the Air Force Sir Hugh said that the Short Service officers were doing splendidly. The competition to join was extraordinarily keen, there had been 6,000 applications for 400 vacancies. There had been a satisfactory increase of applicants from good public schools. And people were appreciating that the Air Force offered a definite outlet for young men.

As to Permanent Commissions he said that there was a satisfactory increase in applicants for admission to Cranwell and from the Universities. He appealed to University tutors to influence young men to join the R.A.F.

Of the Reserve he said that the refresher courses for pilots had been a great success. Though it was outside his province he hoped that they would be a help to Civil Aviation.

Referring to the Auxiliary Air Force and R.A.F. Reserve Bill Sir Hugh said that they only required small numbers of people. He pointed out that the Auxiliary squadrons were formed on exactly the same basis as Territorial battalions and that the Reserve squadrons were precisely analogous to the old Militia.

As to the Other Ranks in these squadrons, he wanted men to join in their own districts for he believed that a welder, for example, working at a bench in a factory could work equally well at a bench in an aerodrome across the road. Thus people would feel that they were defending their own homes.

And they would get pilots just as the old Militia got its officers—he added that he was a Militiaman himself.

He said that there was a certain amount of misunderstanding on these points and confusion between the R.A.F. Reserve squadrons and the Reserve of R.A.F. officers. Also some people wanted to join regular units and some wanted to join units of their own. These would join either Special Reserve units or Auxiliary units respectively.

Of the Home Defence Force Sir Hugh said that this was still in the making. Sir John Salmond who would command the Home Defence Area had proved his ability in Iraq. He took command there in 1922 and had proved that the country could be controlled with numbers much smaller than those an army needed for the same work, and that the policy of air control was more humane and that there were less people killed. Sir Hugh said emphatically that nobody liked to kill. He was sure that even the youngest and most flippant of pilots did not like bombing though they realised that by the judicious use of the air weapon they saved the greater casualties which would be caused if risings were allowed to spread and columns had to be sent to fight and lines of communication had to be supported.

Sir Hugh said that he had had the best of reports from India, Egypt and other countries in which the R.A.F. were operating.

As to the R.A.F. at home, Sir Hugh said that people could see for themselves the smartness of the Guards of Honour turned out by the Air Force. But he wished that everybody could see as he had seen what the boys at Cranwell and Halton, both cadets and aircraft apprentices, were doing. There was nothing to touch them. They did very little drill and yet their drill could not be beaten anywhere. They were taught to turn out the finest work and were taught to use their hands and heads. The boys themselves were the finest type he had ever seen.

Turning then from praise to blame he said that there was something to say on the other side. All were agreed that not enough flying was done per officer or per airman in England or abroad. The number of hours flown was increasing, but he wanted still more flying done. He would not be contented until every officer in every active flying unit flew not less than one hour per day per year in the aggregate. Those officers who were on the Staffs of active service units would fly not less than fifty hours per year. And those on the staff at administrative units such as Areas and the Air Ministry where machines did not exist would fly at least ten hours per year. The more flying the better and he could say that the flying done during his previous year of service would impress the Promotions Board more than anything else in an officer's qualifications.

On the subject of the Independent Force Dinner itself Sir Hugh referred to the great loss which the R.A.F. in general and the Independent Force in particular had sustained through the death of Squadron-Leader Cleverley. His work had been of the highest value and he was one whom we could ill afford to lose.

This year the work of the Dinner had been done by Wing-Commander Nicholl, assisted by our old friend Toc Smith and a Committee consisting of Group-Captain Newall, Colonel Waly Cohen, Wing-Commanders Pattinson, Landon and Rathbone and Squadron-Leaders Young and Cox. 527 notices had been sent out. He expressed the feelings of all in saying that they greatly appreciated the work of the officers named.

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Sir Hugh referred to the Official History of the Flying Services and regretted that Mr. Hogarth who had taken over the work when Sir Walter Raleigh died had resigned from the job. He regretted also that the man who was best qualified to compile the history was not available. [One imagines that Sir Hugh referred to the Honourable John Fortescue.—C. G. G.]

In conclusion Sir Hugh emphasised the fact that the R.A.F. Pageant was not to be a competition with our French visitors in aerial acrobatics. Pilots would do just what they were told and no more. They were not to be egged on to compete.

The R.A.F. Dinner Club.

The third annual dinner of the R.A.F. Dinner Club was held at the Connaught Rooms on June 27th—the eve of the Pageant—where over 100 members were present.

The Chief of the Air Staff, Air Chief Marshal Sir Hugh Trenchard was in the chair and the guests of the evening were Commandant Gastin and Lieuts. Dutruel, Volmerange, Robert and Gaillard.

After the Royal toasts, Sir Hugh Trenchard, proposing "Our Guests," said:—

Air Vice-Marshal Vyvyan, Commandant Gastin, Gentlemen,—I feel it a great honour that I should have been asked to propose the toast of "Our Guests." I am sure that I am only voicing the opinions of all those present when I say that the presence of our French comrades-in-arms and fellow-aviators here gives the greatest satisfaction and pleasure to us all.

I was unfortunately unable myself to accompany our own mission to France recently, but I heard, not only from Air Vice-Marshal Brooke-Popham who was in charge of the mission, but from every officer who accompanied it, of the outstanding welcome with which they were received and the unstinted hospitality lavished upon them in France. Such kindness and generosity were only to be expected from our old comrades of the air in the war of 1914-1918, but they renewed and, if possible, strengthened the entente which has always been maintained between us, and made us anxious to reciprocate and to welcome to this country representatives of France. As a result our guests of to-night have come over to participate in our Pageant at Hendon, not as competitors but as partners, and I only hope that they will return to France with equal feelings of pleasure and satisfaction as the result of their stay—all too short—in this country.

I feel that our guests need little introduction on my part. However, I may perhaps, be permitted to point out that they are all members of the famous second fighter regiment, which is composed of units with a reputation second to none so far as air is concerned. Amongst these units are the 103rd Squadron and that Squadron known to us as "The Stork Squadron," which was the first squadron awarded the cord with the colours of the Medaille Militaire.

Time does not permit of my enumerating the other famous units of

which the Second Fighter Regiment is composed, but I have said enough to enable you to realise the quality of the regiment from which our guests come.

With a modest man one must oneself be modest, and I will not offend the modesty of Commandant Gastin and his comrades by mentioning the personal exploits of which they themselves are the heroes, nor the many honours of which they have been the recipients. Suffice it to say that they are worthy representatives of the great regiment to which they belong.

I will conclude by thanking Commandant Gastin and his comrades for coming over to participate in our Aerial Pageant to-morrow. They are sure of a popular welcome from the British public, who will avail themselves in their thousands of this opportunity to see such distinguished representatives of our great and friendly neighbour.

Gentlemen, I ask you to drink to the health of Commandant Gastin, Lieutenant Robert, Lieutenant Dutruel, Lieutenant Gaillard and Lieutenant Volmerange.

The toast was received with musical honours and Commandant Gastin in reply said how pleased he and his brother officers were to renew the friendships made on the field of battle and how happy they were to participate in the Pageant.

Air Vice-Marshal Sir Vyell Vyvyan, Chairman of the R.A.F. Dinner Club, thereafter talked business. He explained that owing to the lamented death of Sq. Ldr. Robeson, the first secretary of the Club, full accounts were not available, but the Club was in a good financial state.

He hoped that this would become an annual dinner for all units. Ultimately qualifications for membership might have to be imposed, but at present they wanted all officers who had served in the R.A.F. during the War 1914-18, so that the dinner might be a real re-union.

Those who wish to become members are invited to communicate with the Secretary of the Club. Letters addressed to this office will be forwarded.

The R.A.F. Memorial Fund.

The Fund has dealt with 144 cases (exclusive of former officers of the R.A.F.) between Mar. 26 and June 24 and a total sum of £1,469 14s. 4d. has been spent in grants between those dates. The grants generally speaking have been administered under the heads of maintenance during sickness, funeral expenses, grants for clothing, grants or loans to establish small businesses, purchase of tools, rail fares, etc.

The grants to the post-war R.A.F., chiefly consisting of maintenance pending pension, come to a total of £152 8s. 11d.



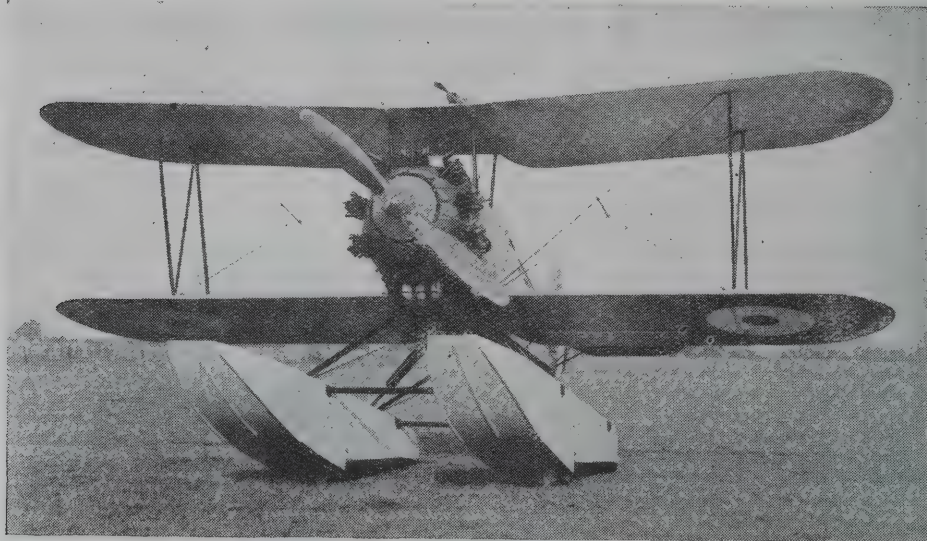
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CONTROL WITHOUT OCCUPATION.—III.

[The following is a continuation of the despatch (publication of which was begun on June 18) from Air Marshal Sir John Salmond concerning operations from Iraq to control hostile tribes in the vicinity without occupying their territory.—E.D.]

36. It was now necessary for Officer Commanding Frontiercol to await the arrival of Koicol at Benawi before attacking and meanwhile to pin the enemy to his position. Instructions to this effect were conveyed to him by aeroplane on the same day in the following dropped message:—

Dropped Message No. 2.

From:—A.O.C. at Kirkuk.

To:—O.C. Frontiercol.

Date:—April 16th. 15.00 hours.

In reference to my letter dropped on you this morning and my telegram giving you the code word "communicate Koicol" (see para. 4 of above quoted letter).

1. Koicol will start for Rowanduz to-morrow morning the 17th instant and will reach

Nuwaneh, evening of the 17th.

Balassan, evening of the 18th.

Benawi, evening of the 19th.

if no unforeseen difficulty arises.

From Benawi Koicol will be directed in Bejan Pass in rear of the Spilik.

The object of this movement is to outflank the enemy now facing you on the Spilik, and if possible to cut off his retreat to the Bejan Pass.

2. It will, therefore, be necessary for you for the present to withhold your attack on the Spilik and to await news of the arrival of Koicol at Benawi.

3. In order to synchronise the enveloping movement of Koicol with your attack on the Spilik you will keep in close wireless touch with Koicol from now on. On and after the arrival of Koicol at Benawi your future movements and the time your Column will attack the Spilik will be ordered by Officer Commanding Koicol. Your subsequent operations on Rowanduz will come under direction of Officer Commanding Koicol until such time as that Column leaves the Area.

4. Meanwhile it is necessary for you to pin the enemy to his ground by all possible means without involving your Column in a serious attack.

5. Advanced Air Headquarters will open at Arbil as from 16.00 hours local time to-morrow 17th instant. From which time all operations and situation reports will be addressed "Advanced Aviation Arbil."

6. Acknowledge by Wireless to Aviation Baghdad.

Copy to O.C. Frontier Col

" " O.C. Koicol

" " Aerowing Mosul.

(Signed) J. M. Salmond, Air Vice-Marshal, A.O. Commanding.

38. On the following day I proceeded by air with my advanced Headquarters to Arbil in order that I should be in a position to co-ordinate

as rapidly and effectively as possible the now closely inter-dependent operations of the two Columns.

39. On the 17th, while at the Sorak Chai, a regrettable incident occurred to the Police Force accompanying the Column. The Police Officer, whilst in search of information was ambushed and lost four police killed and four wounded and inflicted six casualties killed on the enemy.

40. Koicol left Serkhuma early on April 17th. About one mile West of Betwata a formidable spur juts into this valley leaving only a narrow defile near Nuwaneh which is completely commanded by the heights on either side.

As the Advanced Guard approached this defile some forty armed men, who appeared to be Turks, were observed moving over the mountain towards it. When our guns were within effective range fire was opened with excellent effect, one shell killing three and wounding fifteen. Fire was at the same time opened by armed Kurds from the heights to the West and these were also shelled and machine gunned and were driven off. The Column picketed the ridge to the West and camped for the night in the open Valley South of the Nuwaneh defile.

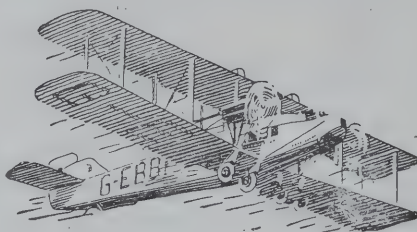
41. On 18th April, at the request of the Column Commander very close co-operation by aircraft was arranged while the Column moved through this defile, and the Column was in this way saved much hill climbing and many delays to picket the heights. Balassan was reached that evening without a shot being fired.

42. On the morning of the 19th while the Column was passing through a narrow rocky wooded valley, considerable resistance was met.

The Column came under sudden fire from the surrounding heights on all sides and from sangars and trenches prepared on a ridge which formed the neck of the valley to their front. Thanks, however, to the prompt action of the Column Commander and the coolness and discipline of all ranks our casualties were confined to five other ranks wounded, whereas the enemy were reported to have left thirty killed. Aircraft co-operated most effectively throughout the engagement; the enemy in sangars and trenches were bombed and machine gunned; messages were dropped on the Column indicating concealed positions which were occupied by the enemy. A message requesting continuous air action was picked up from the Column. After the engagement had lasted nearly three hours the enemy could be seen retiring from their positions before the advance of our troops. The Column occupied the ridge to their front and camped there close to the village of Benawi. A dump of thirteen-pounder shells was left here by the enemy.

43. Meanwhile, all preparations had been made for Frontiercol to attack the Spilik position at dawn on the 20th.

It will be seen, however, that the position at which Koicol were established, at Benawi, commanding the entry to the Haji Bejan Pass, turned the Spilik Dagh and constituted a serious threat to the Turkish line of retreat to Rowanduz. This threat had proved to be formidable for Euz Demir and on the night of the 19th/20th he withdrew; while his tribal following melted away, disheartened by the emptiness of his assurances of successful resistance and by the determined advance



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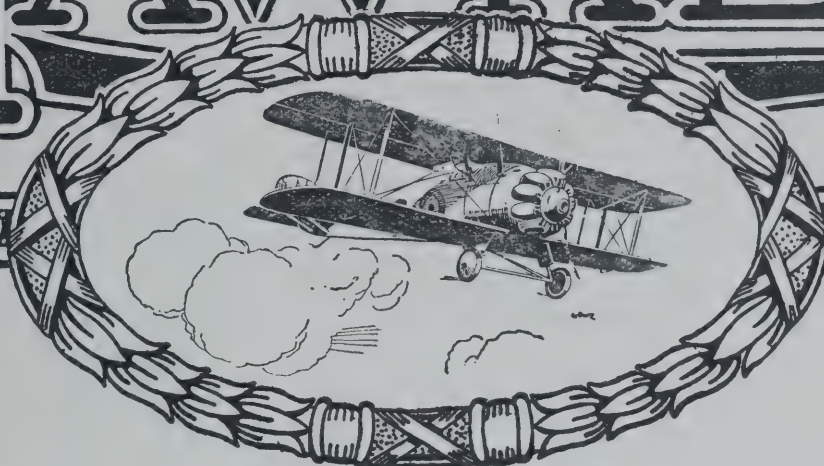
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

of Koicol. Early on the morning of 20th Frontiercol advanced over the Spilik without opposition: and in spite of very adverse weather conditions which much increased the difficulties of the steep track over the Dagħ for their long transport train, were established at Serchia by the afternoon.

44. The Spilik position proved on examination to have been chosen with all the usual Turkish skill. It had been prepared with sangars well sighted and concealed, commanding glacis slopes and designed so that the first line, when captured, should come under effective fire from positions behind.

45. After the Spilik is passed there are two positions at which Ezuz Demir could have made an effective resistance; in the Rowanduz Gorge and at the Haji Bejan Pass.

The route from the Spilik to Rowanduz leads via Khaniwatman through the Gorge of the Rowanduz Chai. This famous Gorge, some 12 miles in length and in places over 2,000 feet is a narrow dangerous defile in which a few determined men with machine guns could seriously hold up even a considerable force. Moreover, the features are so vast and the distances so great that pickets from the heights can afford but little protection.

An alternative route to Rowanduz leads from Benawi by a very steep and difficult path over the Eastern shoulder of the Kurrek Dagħ at the Haji Bejan Pass.

These two routes are linked up by the Alana Valley.

46. On 20th, Officer Commanding Koicol had pushed forward a Force to an advanced position from which the head of the Bejan Pass could be covered at a range of 5,000 yards—and on the 21st made a reconnaissance of its approaches. Meanwhile Frontiercol moved forward on the 21st to Khaniwatman whence entry to the Rowanduz Gorge is commanded.

Aircraft on this day reconnoitred both routes to Rowanduz in spite of very severe hail and thunderstorms, and came under fire from the head of the Bejan Pass.

47. In view of the great natural strength of both these routes it had been arranged that a junction of the two Columns should be effected at the foot of the Bejan Pass, and that a combined advance should be made by that route.

Reliable information, however, which all air reconnaissances had tended to confirm, was received by Frontiercol on 21st that the Gorge route and Rowanduz itself had been evacuated.

Accordingly on 22nd a small party of Frontiercol was sent through the Gorge with air co-operation to test this information, a picket being at the same time sent forward by a difficult hill track which leads over the Western shoulder of the Kurrek Dagħ. One battalion of Frontiercol effected a junction with Koicol by way of the Alana Valley to take part in the advance to the Bejan Pass. The main body of Frontiercol proceeded later through the Gorge Route and were established at Rowanduz by the early afternoon. Koicol occupied the head of the Bejan Pass at noon and the advance guard reached Rowanduz by 5.30 p.m.

Distant air reconnaissances throughout the day disclosed no sign of the enemy.

48. It now became advisable to arrange for the withdrawal of Koicol in order to lighten the burden thrown upon the Supply arrangements. These had originally been planned for an operation in this area by Frontiercol alone for which Column a main dump of 21 days' reserve supplies had been established at Khaniwatman. Koicol had carried supplies for a period up to the 25th inclusive.

49. Accordingly on the 24th the advanced guard of Koicol which had entered Rowanduz on the 22nd left to rejoin the main body at Benawi via the Gorge Route and the Alana Valley, and marched on this day a distance of 30 miles by a difficult pack track; a remarkable achievement.

50. Koicol commenced their return march from Benawi on the 25th. Near Askaffah on this day the rear guard was fired on, by a party of Kurdish riflemen. These were shelled effectively and were soon driven off.

On the return march destructive measures were taken against certain villages along the route which had been actively hostile during the advance.

The column reached Serkhuma on the 28th without further incident and remained there until the 30th.

51. Frontiercol remains for the present at Rowanduz whilst the question of the future administration of the district is settled.

52. The total casualties by enemy action were:—Koicol, 1 B.O.R. Missing and subsequently reported killed; 7 B.O.Rs Wounded; 7 I.O.Rs. Wounded. Frontiercol, Nil.

53. These operations were carried out in difficult hill country over little known routes of which even the most recent maps are of small value for military operations. Throughout their course I was impressed by the many and particular advantages which the informed use of air power had given me for conducting this kind of warfare; and I venture to suggest that the experience gained foreshadows important new developments in the conduct of "small wars."

54. It is not too much to say that in a "small war" no Commander has even before been so closely in touch with his Columns, and at the same time with the general situation throughout the country.

55. Indeed had it not been for this power of rapid intercommunication which I possessed in aircraft and R.A.F. Wireless in this country of great distances and crude means of communication, I should have hesitated to undertake this operation at all; while to have timed the outflanking movement I have described above would have been impossible.

56. I shall submit a separate report in this connection at an early date, and shall not, therefore, touch in this despatch upon the normal work of air co-operation by reconnaissance, photography and sketching, and by the engagement of ground targets, which was daily carried out; nor upon independent air operations by more than twenty machines which, as occasion required, were carried out against enemy positions.

A few instances, however, may be set down here of those uses of aircraft which gave me the particular advantages for conducting this type of warfare to which I have referred above.

(To be continued.)

THE DOPE OF PROVED EFFICIENCY.



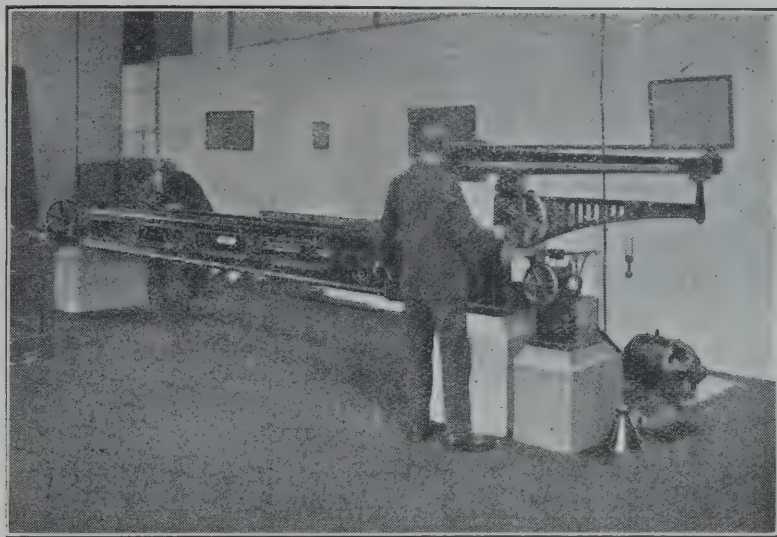
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THIS advertisement is the fourth of an interesting series of announcements dealing with the design and construction of Boulton & Paul Aeroplanes, to appear at regular intervals in this journal.

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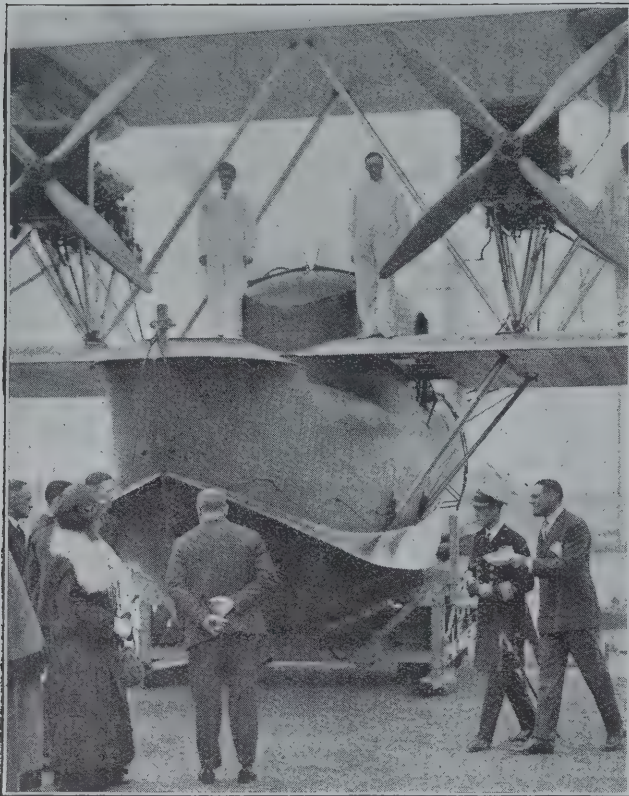
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THE PRINCE OF WALES AT THE SUPERMARINE WORKS.—His Royal Highness is here seen accompanied by Squadron-Commander James Bird (late R.N.) to inspect the Swan (two Napier Lions).

A Royal Visit to the Supermarine Works.

On June 27 H.R.H. the Prince of Wales, K.G., went to Southampton to open the new floating dock which has been built there. While at Southampton, His Royal Highness visited the Supermarine Aviation Works at Woolston.

Immediately after his reception at the station by the Lord

Lieutenant of the County, Major-General J. E. B. Seely and the Mayor and Aldermen of Southampton, His Royal Highness drove straight to the Supermarine Works arriving there at 11.30 hrs. He was greeted by the sounding of every siren on the river. The route was lined with men of the Hampshire Regiment.

The Prince was received at the Supermarine Works by the Directors of the Company including Squadron Commander Bird, late R.N., the Managing Director, and Mr. Leigh Mossley.

The Prince was shown over the works by Commander Bird. The Supermarine Swan, the largest twin-engine flying boat in the world was the most important aircraft shown to the Prince. This flying boat which is fitted with two 450 h.p. Napier Lion engines was only launched on June 25 and on her first trial was flown for an hour and three-quarters.

It will be remembered that a page of illustrations of a similar machine with Rolls-Royce engines appeared in *THE AEROPLANE* on April 9, and on April 16 a description of her trials was published.

His Royal Highness had not visited an aviation works since the War and expressed his surprise at the amount of progress made. He was intensely interested in the Swan and also in the twelve amphibian bombing machines which are being constructed at the Supermarine Works for the Spanish Government.

Admiral Cardona, the Chief of the Spanish Royal Naval Air Service who arrived from Spain in the Aircraft carrier *Dedalo* to take delivery of these machines, had the honour of being presented to His Royal Highness.

The construction of the circular flexible hulls for which the Supermarine Company is famous was also explained to the Prince and the fact that these hulls absorb all shocks from a rough alighting and that one has even been allowed to drop from 100 ft. onto the water without damage appeared to interest him very much.

Captain Biard, the test pilot of a firm who won the Schneider Trophy for Great Britain in 1922 on the Supermarine Sea Lion II Amphibian also had the honour of being presented to His Royal Highness.

At midday the Prince left the Supermarine Works to carry out the rest of his programme.

The guests of the Supermarine Co. who had been invited to see the Prince of Wales inspecting the works were afterwards entertained with lavish hospitality in a handsome steam yacht and were taken to see the ceremony of opening the floating dock.

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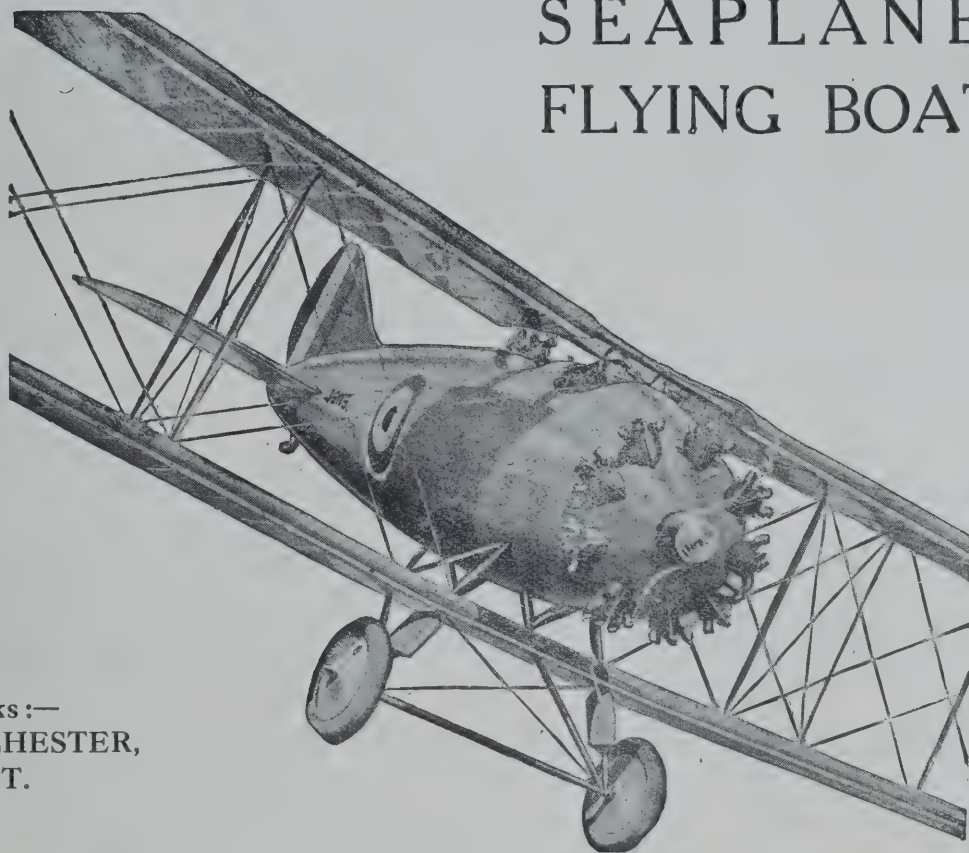
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

COMMERCIAL AERONAUTICS.**The London Terminal Aerodrome.****ANALYSIS OF FIGURES FOR THE PAST WEEK.**

Trips per Day.—Monday, 18; Tuesday, 20; Wednesday, 22; Thursday, 22; Friday, 23; Saturday, 28; Sunday, 15.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Amsterdam—Berlin: Machines 90, passengers 335, freight —.

AIR UNION:

Paris—London: Machines 35, passengers 192, freight 25,548 lbs.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 12, passengers 39.

AERO-LOYD:

Berlin—London: Machines 8, passengers 16.

SPECIALS:

DE HAVILLAND HIRE:

Machines 2, passengers 1

SURREY FLYING SERVICES:

Machines 1, passengers 2.

Total number of trips by British machines 93, carrying 338 pas.

Foreign machines 55, carrying 247 passengers.

Comparative Figures:

For week ending June 29.

Machines, 148; passengers, 585; crews, 183; Total personnel, 768.

Corresponding week, 1923:

Machines, 131; Passengers, 473; Crews, 218; Total personnel, 691.

Corresponding week, 1922:

Machines, 126; Passengers, 260; Crews, 173; Total personnel, 433.

Corresponding week, 1921:

Machines, 102; Passengers, 381; Crews, 123; Total personnel, 504.

Corresponding week, 1920:

Machines, 113; Passengers, 221; Crews, 134; Total personnel, 355.

Croydon Notes.

Last week was a splendid week for the air lines and in particular for Imperial Airways Ltd. 585 passengers were carried out of which Imperial Airways carried 335. If they can do as well as this with the present machines, when they get some of the new machines incorporating the latest safety devices their commercial success seems assured.

On Saturday alone Imperial Airways Ltd. carried 77 passengers in 18 machines.

There has been a certain amount of uncertainty over the continued running of the Berlin service. The Germans seem to have a very just grievance over the continued ban on their building commercial machines of the same size as ours and they very rightly and very politely say that if they may not fly large commercial machines over Germany then no one else may either.

However as they realise that the French and not the

British are the cause of the trouble they have renewed permission for the service to Berlin for another two months.

The German Aero-Lloyd service is running now with great regularity with Dorniers and occasionally with Fokkers. The service runs right through from Berlin three times a week.

Mr. Hubert Broad arrived back from Prague on the flap D.H.50 on Saturday after having, single-handed, kept the flag of British Aviation flying at Prague.

With the exception of a visit by Mr. Alan Butler earlier in the meeting Mr. Broad was the only British pilot flying there. However he made up adequately for the paucity of British talent. The De Havilland Company who are the only British firm who do civilian flying on their own machines to any extent deserve all the success which they may acquire.

Mr. Hayden on the Surrey Flying Services D.H.9 took two passengers to Paris for the Grand Prix and a number of "Rodeonts" went in a W.8b.

For the Aircraft Disposal Company Ltd. Mr. Perry has been busy, making in all thirteen flights on six D.H.9s.

The Britannia Trophy.

The Committee of the Royal Aero Club each year decide which British Aviator in their opinion has accomplished the most meritorious performance in the Air, and his name is inscribed on the Britannia Trophy which was presented by Mr. Horatio Barber, then concerned with the Valkyrie aeroplanes.

The Award for the year 1923 will be made shortly, and the Royal Aero Club will be glad to receive particulars of performances, both military and Civil, which would assist the Committee in arriving at a decision.

PREVIOUS AWARDS.

1913—Capt. C. A. H. LONGCROFT, R.F.C., for his non-stop flight on Nov. 22, 1913, from Montrose to Farnborough, via Portsmouth. B.E.2. 70 h.p. Renault. 445 miles.

1914—Squadron Commander J. W. SEDDON, R.N., for his seaplane flight on Jan. 21, 1914, from Isle of Grain to Plymouth, via Calshot. Maurice Farman Seaplane 70 h.p. Renault.

1915-18—No Awards.

1919—Sir JOHN ALCOCK, K.B.E., for his cross-Atlantic flight (St. John's, Newfoundland—Clifden, Co. Galway), June 14-15, 1919. Vickers-Vimy Biplane, 2-350 h.p. Rolls-Royce Eagle VIII engines. 1,890 miles. 16 hrs. 12 mins.

1920—BERT HINKLER for his flight from Croydon to Turin, May 31, 1920. Avro Baby Biplane, 35 h.p. Green engine. 650 miles. 9 hrs. 35 mins.

1921—No Award.

1922—F. P. RAYNHAM for his Glide at Firle Beacon, Sussex, Oct. 17, 1922. Duration 1 hr. 35 mins. 2 secs.

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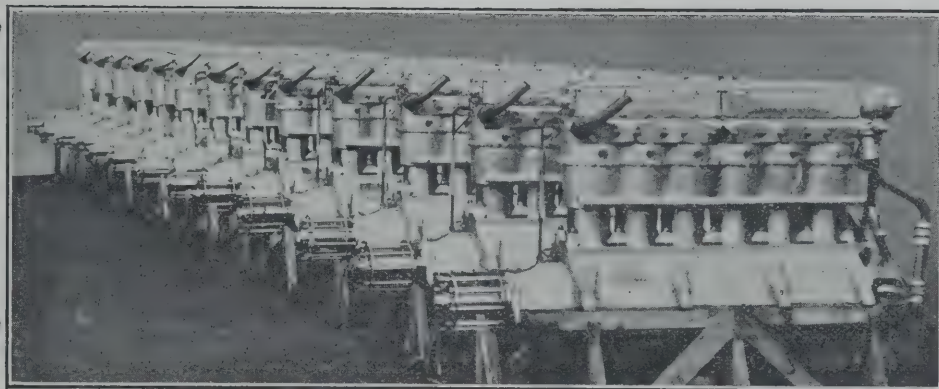
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The Copenhagen-Rotterdam Air Line.
The Royal Swedish Mail Air Line (commencing 21st June);
The K.L.M. (Holland).
The De Havilland Aircraft Hire Service.
The Liverpool to Belfast Royal Mail Air Line.
The Seville-Larache Air Line (Spain).

In addition several British and Continental Aircraft Constructors are designing machines of new types to be fitted with 240 h.p. Siddeley Puma Engines.

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THE GLOBE TROTTERS.

THE BRITISH EXPEDITION.

On June 25 Sq. Ldr. MacLaren, Flg. Off. Plenderleith and Sergt. Andrews left Akyab, on the Vickers Vulture for Rangoon. Before leaving the vicinity of Akyab they had to land twice on the golf course and after cutting across the Bay of Bengal a leaky radiator compelled them to land at Gwa. It was on this flight from Akyab to Gwa that they passed over the American expedition who were flying from Rangoon to Akyab.

After repairing the radiator at Gwa they were again forced to land at Yandoon on the Irrawaddy delta owing to a leaky petrol tank. They eventually arrived at Monkey Point, Rangoon, five hours late, and were lucky to find a suitable stretch of water on the Rangoon River before pitch-dark night fell.

On June 27 they left Rangoon for Bangkok. The weather was most unfavourable, with clouds low down over the mountains and storms that increased in their intensity during the flight. They were compelled to fly at 100 ft. over hilly country and the machine was thrown about like a cork in a torrent. A landing was made at Tavoy for the night.

On the 28 inst. they left Tavoy for Bangkok under conditions only slightly more favourable than those of the previous day. The mountains were still covered with clouds. They flew over three ranges of hills, and vast stretches of jungle where landings were impossible and eventually landed at Donmuang aerodrome tired out. Donmuang aerodrome is about 20 kiloms. from Bangkok and is the headquarters of the Siamese Flying Corps.

They left Bangkok at 06.07 hrs. on June 29, in calm, but cloudy weather, and arrived at Korat at 07.52 hrs. From Korat they crossed jungle country to the Mekong River flying at 7,000 ft. to clear the mountains. The clouds were low and at this altitude they lost sight of everything below.

On dropping below the clouds they found themselves completely hemmed in by mountains and were at a loss to know how to get out. A decision to land on what looked like a likely open space, proved to be impossible, as the supposed open space proved to be long grass in swamp. They decided to make the Mekong River, again climbed to 9,000 feet and steered a compass course to Vinh.

They alighted on the sea at Vinh at 12.45 hrs. went inshore in search of petrol and oil and left again at 15.30 hrs. They followed the coast and after passing through several storms landed at Haiphong at 18.05 hrs. Here, as at Vinh, there was nobody to meet them as they were not expected.

At 10.10 hrs. the next day, they left Haiphong in a dead calm, the Vulture having some trouble in unsticking from the glassy sea. The weather became worse and rain began to fall. At Pak-Hoi the weather cleared but at Tin-Pak they ran into rain and low clouds again.

They passed over Macao at 15.55 hrs. and landed at Hong Kong at 17.12 hrs. They received a hearty welcome from a crowded fleet of launches, including that of the Governor.

On July 1 they rested and on the following day they were due to leave for Foochow and they also hope to reach Shanghai the same day.

THE AMERICAN EXPEDITION.

The American expedition left Rangoon on June 25 at 10 hrs. and reached Akyab at 14.25 hrs. and then flew on to Chittagong, 160 miles N.N.W. of Akyab, and 230 miles west of Calcutta.

They left Chittagong on June 26 and arrived at Calcutta later the same day. On June 28, the three seaplanes were flown down the River Hooghly from Nawabgunj to a point opposite the Maidan, a space being cleared for them in the densely crowded river! At Prinsep's Ghats the machines were hoisted out of the river and the floats which have done duty since their departure from Seattle, U.S.A., were removed and wheeled undercarriages substituted for the flight to England.

The machines were due to leave Calcutta for Allahabad on July 1.

Atlantic to Pacific in Daylight.

The Times correspondent at New York in a message dated June 24 states:—

Lieut. R. L. Maughan, U.S. Army Air Service, yesterday flew from New York to San Francisco. He arrived at San Francisco at 9.44 p.m. (Pacific time), 21 hours 49 minutes after he had started from the shores of the Atlantic in the dawn. His actual flying time was 18 hours 26 minutes for a journey of 2,670 miles, so that his average speed was nearly 145 miles an hour.

His Curtiss "Pursuit" aeroplane (Curtiss engine), though it was new and had never been tried on a long flight, functioned perfectly. Only one repair was made on the entire trip, the replacement of a small fitting broken not in flight, but by carelessness in overhauling the machine at Dayton, Ohio.

There were no untoward incidents. An unexpected stop was made at North Platte, Nebraska, for petrol, but the delay there was less than half an hour.

When approaching Cheyenne, Wyoming, Lieut. Maughan was affected by nausea from the motion of the aeroplane, as on a previous trip at the same place, but he recovered quickly after landing, and the last stages of the flight over the Sierra Nevada mountains he made in high spirits.

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" March 24th, 1924

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Dear Sir,—I received the sixth lesson of my course a few weeks ago. The result has been wonderful. I am changed altogether, Neurasthenia has almost entirely gone and I continually feel the 'Joy of Living.' I can now play a game of football without any fatigue, and walk miles without feeling any the worse for it—whereas before taking up the course I suffered from palpitation at the least exertion. I do not know how I can adequately thank you, but I am doing all that is in my power to preach the Maxalding Movement. You are at liberty to use this letter.

Yours very gratefully, (signed) D. HUGHES JONES."

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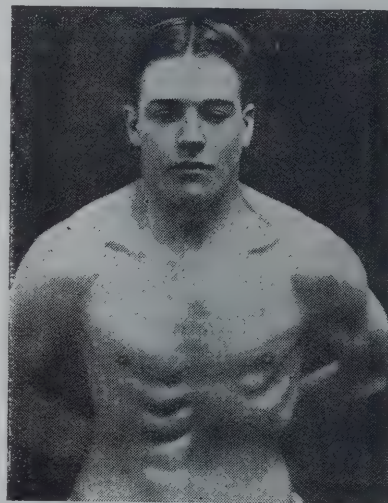
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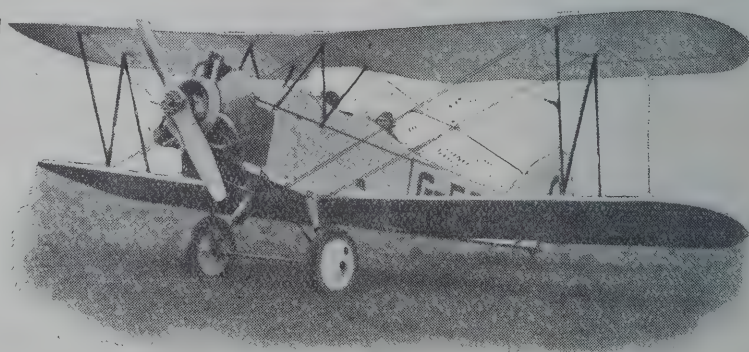
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BUCCANEERING UP TO DATE.



As has been recorded in "The Aeroplane" Messrs. C. Z. Zimmerman (pilot) and Floyd Whalton (mechanic) set out from Keyport, New Jersey, on the good seaplane Morro Castle II (Aeromarine Metal Hull) to tour the Spanish Main—or some part thereof. Their success was complete in wresting from the inhabitants of the West Indies if not gold at least good dollars. The Morro Castle II is here seen in the harbour of St. Juan, Porto Rico.

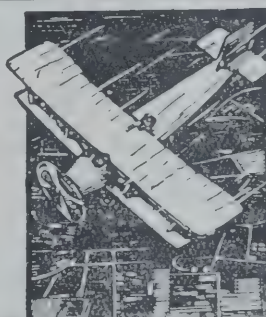


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JULY 9,
1924.

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ON PARACHUTES AND PILOTS.

There are few subjects on which the opinions of practical aviators are so divided as they are on the usefulness or otherwise of parachutes.

Towards the end of the War 1914-18 the High Command of the R.A.F. was disposed towards the fitting of parachutes to fighting aeroplanes. Our aviators had seen several Germans save themselves from burning or broken machines by jumping out with parachutes. And many war-worn pilots and observers openly avowed that they would cross the lines with stouter hearts if they knew that if their machines were set on fire or badly hit they would at least have a sporting chance of getting down alive in parachutes.

On the other hand some commanding officers argued that if pilots were allowed parachutes they would be liable to get out and walk and be taken prisoners instead of fighting to a finish or struggling back across the lines with badly damaged machines. And some brave or reckless pilots argued that they would rather go without parachutes and get better speed and faster climb by the consequent saving of weight.

Personally, as a result of many talks with pilots and observers, one was convinced that the moral of pilots and observers alike would have been improved by providing them with this chance of saving their lives. And so far as performance was concerned it was fairly evident that the difference in weight between carrying a parachute or not was merely the difference between a fat pilot and a thin pilot.

After the Armistice the parachute arguments almost ceased, because little flying was done in the R.A.F. for a couple of years and the risk of a machine catching fire or breaking in the air seemed so remote that nobody bothered much about the subject. And there seemed no use whatever for parachutes in Civil Aviation although people interested in parachutes published weird ideas for machines with detachable cabins which could be released complete with passengers attached to a huge parachute if the machine caught fire.

Some few fanatical believers in parachutes tried to maintain and revive interest in their pet subject by rushing into print whenever a fatal accident happened with an aeroplane and arguing that if a parachute had been fitted there would have been no fatal result. But unfortunately like all fanatics, political or religious, that spoiled a good case by bad argument.

Because a good parachute will open under favourable conditions within 100 feet or so they used to argue that if a machine caught fire or got out of control 100 feet from the ground the pilot and passengers could have been saved by parachutes. It never seemed to occur to them that it takes a man several seconds to make up his mind whether he will walk overboard with a parachute from a machine which has gone wrong or whether he will stick to his post and try either to get control of the machine and land properly or try to reach the ground before the fire becomes serious, and that during those few seconds the machine will probably be wrecked or burned.

The fact is that although a man may safely jump out with a parachute from a height of 100 feet if he has made up his mind before-hand to do so, a parachute is in practice very little use unless the mishap which causes the pilot to use it occurs at a height of something like 2,000 feet. And this is so simply because the user must have time in which to decide whether he must of necessity commit himself to salvation by parachute or whether it may be possible to save the machine by remaining at the controls. But seeing that nearly all Service flying even in time of peace is done at very considerable heights there is no doubt that parachutes should be used with all Service machines at all times.

One uses the phrase "used with Service machines" deliberately instead of saying "fitted to Service machines." The parachute which is fitted to an aeroplane and depends for its opening on the user pulling the parachute out of its case by the force of his falling weight acting against the inertia of the machine is perfectly useless. The only type of parachute on which reliance can be placed under all circumstances is the type in which the user casts himself entirely free of the machine and then lets out his parachute.

In the first type the parachute is packed in a case which is part of the machine and the user has to fall so much faster than the machine is falling as to pull the parachute out of its case. If a wing breaks or if a control goes wrong on the machine either the machine may fall just as fast as the man so that when he jumps he can exert no pull to extract the parachute from its case or the machine may be spinning round and round itself so that, when the man jumps and the parachute begins to pull out, the parachute and its lines will merely become wrapped round parts of the machine.

In the second type the parachute is packed in a kind of packet upon which the aviator sits in the machine. In that position it acts as a very useful seat cushion for a pilot or a gunner observer and in no way impedes his movements. When he decides to go overboard he leaps quite clear of the machine so that if the machine is broken and spinning round itself there is no chance of his becoming mixed up with it. As he falls he releases a small parachute which is specially arranged so as to be as easily reached as a pocket handkerchief in the breast pocket of a coat. This parachute expands, and in its turn pulls out the big main parachute.

Naturally by the time they have both opened the man has dropped a considerable distance but he is by then at any rate thoroughly clear of the machine and the odds are very much against the abandoned machine spinning round and colliding with the parachute. Though of course there is always the possibility of such a thing happening the chance is so remote that it does not compare with the danger of a parachute which is attached to the machine becoming entangled.

For Service purposes undoubtedly the independent parachute is far better than the attached parachute, though if it ever became the custom for people deliberately to alight by parachute from aeroplanes which were flying under proper control the attached type of parachute would be better.

The reason for writing on the subject of parachutes at the present time is that in the course of the last few weeks two accidents costing in all five lives have occurred in the R.A.F. under conditions when parachutes would almost certainly have saved all the lives.

The first case was that of Flt. Lt. Usher who was testing a new type of machine at Northolt when it broke in some mysterious way. Some of the witnesses say that an upper plane came away in the air, others say that something went wrong with the engine or the airscrew which caused the central portion of the machine to break. In any case the machine was at quite a considerable height and something did break in the air. From the description of eye-witnesses it would seem that a parachute of the attached type would very probably have entangled itself in the machine whereas with a parachute of the independent type Mr. Usher could have dropped clear and would at any rate have had an excellent chance of reaching the ground safely.

The other accident involved two machines of No. 39 Squadron at Spittlegate which collided in the air while practising formation flying for the Pageant. One has no official information as to whether these machines were at any considerable height when the collision occurred but local reports say that they were. And if they were it is certain that the crews, or some of them, could have got clear with parachutes.

The reliability of the independent type of parachute has been thoroughly well proved in America as well as in Germany. There are two or three pilots in the U.S. Army Air Service whom one regards as the bravest men in the World because of the way in which they have used parachutes as an accessory to a particularly valuable form of work.

These pilots are regular test pilots of the U.S. Army and have been making tests to discover causes of breakage in various types of aeroplanes and various types of wings. The experiments have included tests as to why wing-tips of certain types develop a flutter under certain conditions and destroy the control of the machine, and it has been most important to discover how and at what speed this flutter develops and whether if it persists the wings will actually break.

These pilots have deliberately gone up in machines of types which have broken in the air and in which wing flutter has been suspected as the cause of breakage. They have gone up equipped with parachutes, have taken the machines to 10,000 feet or so, and have then deliberately pushed the nose down and held the machines on a dive till the wings have broken. And then they have calmly walked overboard and come down by parachute.

One of these bright lads, who has implicit faith in his parachute, has even gone to the extent of fitting a machine all over with tensometers—or whatever happens to be the local name for recording instruments which register the strains put on bracing wires and spars and so forth. He has then taken a machine up and has pushed it into a dive and at its maximum diving speed has pulled it straight back on to a loop to see what would happen. One or two machines have broken under the strain and he has come down by parachute. The charts from the measuring instruments when dug out from the wreck of the machine have then showed precisely how many times their normal flying load the various parts of the machine have stood before collapsing.

With specially strengthened machines he has even gone so far as knocking himself out for several seconds by the sheer pressure put on his internal economy by the tricks which he has played with the force of gravity and centrifugal force. People are apt to forget that their internal arrangements are not designed to stand six or seven times the ordinary force of gravity when that force is suddenly multiplied.

Such information as is obtainable by such experiments is of immense value and it cannot be got in any other way than by taking such risks as these. The United States as a nation owe these young officers an immense debt of gratitude for their amazing bravery and one only hopes that the official experts of the U.S. Army will make good use of the knowledge thus obtained.

There is no doubt that R.A.F. test pilots and civilian test pilots also would carry out precisely similar tests if they were provided with parachutes of the proper type and if they were allowed to make such tests. But at present both the parachutes and the permission are lacking and so is the knowledge.

Quite apart from deliberately breaking machines as these gallant American pilots have done one is strongly of opinion that such parachutes should be used by every test pilot whenever he is flying a test machine.

No matter how good a designer may be and no matter how close the supervision of the construction of the machine may be there are always unknown qualities and unknown quantities in every machine of a new type. We know practically nothing about the effects of down waves from thick wings on tail and rudder control and we know equally little about the effects of leaving gaps between the two upper planes of a biplane in order to increase the pilot's range of vision. One fatal accident at one of our test stations some months ago has been ascribed to the latter cause and it is pretty certain that Colonel Travers was killed at Croydon through the former cause.

Therefore one suggests seriously that until all the tricks of a new type of machine have been discovered the pilot or pilots whether Service or civilian should wear parachutes of the independent type.

Probably if a civilian tests pilot were to ask a firm whose new machine he was about to test to provide him with a

parachute, or if he were to buy one of the American or German independent parachutes and arrived at the machine with it he would be accused of losing his nerve, or as it is colloquially called "suffering from cold feet." Personally one thinks that any test pilot who does not wear a parachute now that such parachutes are available is taking unnecessary risks.

One of our most famous test pilots only escaped a fatal accident the other day by sheer luck and presence of mind. He was testing a new machine when the ball-joint at the bottom of the control column came away from its fixing leaving him without any elevator control at all. It so happened that the tendency of the machine was to climb and not to dive. If it had attempted to dive he would have gone straight into the ground without any possibility of saving himself.

As it was he let the machine climb and then felt about in the bottom of the cockpit till he discovered which of the wires pulled the elevator down. Having got hold of the right wires he then flew the machine very gingerly back into the aerodrome and got it safely onto the ground, as fortunately he was just able to peep over the edge of the cockpit while stooping down and pulling the elevator wires with his hands.

Very few pilots could have got the machine down under the circumstances but any pilot finding that the machine would climb and would not come down could have saved himself if he had had a parachute by letting the machine climb to a proper height and then getting out with the parachute.

There is also that very interesting example of the reliability of parachutes which was provided in the making of an American film. In the story the villain has eloped with the heroine by aeroplane and the hero who was either travelling in the same machine or had alighted on the machine from another, by the famous rope ladder trick, proceeded to chase the villain along the wings whence he was to push him off into space. According to plan the villain was to wear a parachute hidden by a coat and was to unbutton the coat before the hero pushed him off the wing. In the excitement the hero pushed him off the wing before he had unbuttoned his coat yet such was the efficiency of the parachute that the villain had time to unbutton his coat and release the parachute in time for it to open and bring him safely to earth.

In the face of such evidence it is obviously foolish that test pilots or Service pilots should not wear parachutes. They should never be necessary on passenger machines and it would never do to insist on air-line passengers wearing parachutes because such a regulation would merely destroy all public faith in the safety of flying as much as if every passenger on a steamboat were compelled to wear life jackets in the same way that we were supposed to wear them when we crossed the Channel during the War. But air line machines are not subjected to any undue stress and if ground communication were properly organised there would be no danger of collisions in the air and even with existing designs there is practically no danger of passenger machines catching fire in the air.

Therefore if the regulation is made that Service and test pilots must wear parachutes much good will be done both by preserving the nerve of the aviators and very probably by the acquisition of valuable knowledge from mishaps which without parachutes might have had fatal results.

R. M. Walmsley.

Robert Mullineux Walmsley, D.Sc., F.R.S.E., M.I.E.E., F.R.Ae.S., F.C.S., F.Inst.P., M.Int.Met., who died on June 15 last as the result of a street accident of two days earlier, was well known as the Principal of the Northampton Polytechnic Institute, London.

Dr. Walmsley's activities both in the educational sphere, to which his chief energies were directed, and as a consulting engineer were mainly concerned with electrical work, but his interests covered an exceedingly wide range in practically all branches of science, amongst them aeronautics. Largely owing to his initiative the Northampton Institute inaugurated an aerodynamic laboratory at least as early as 1910 and a series of courses in aerodynamics and aeronautical engineering have formed part of the syllabus at that Institution ever since.

His personal interest in aeronautics was very considerable, as is instanced by his membership of the Royal Aeronautical Society.

Dr. Walmsley was educated at Queen's College, Liverpool, and at the Finsbury Technical College. In 1883 he was Chief Assistant at Finsbury Technical College. In 1890 he became Professor of Electrical Engineering at the Heriot Watt College, Edinburgh, afterwards became Principal of the Northampton Institute. He was in addition a Senator and Chairman of Convocation of London University, and acted

as consulting engineer in connection with various electrical undertakings.

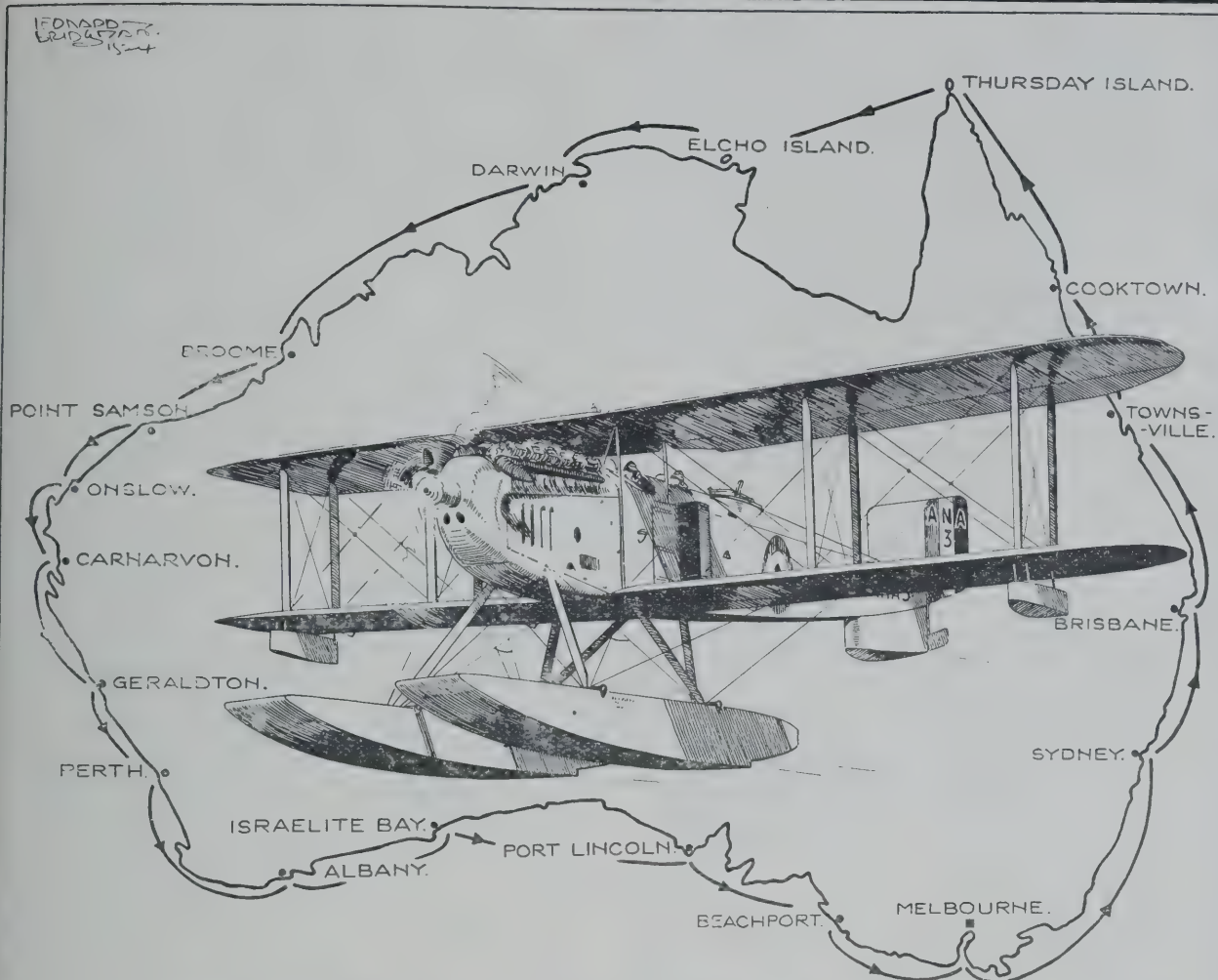
Dr. Walmsley was therefore a man of very high standing in the world of technical education, and the fact that he was more especially concerned with electrical engineering probably rendered his interests in aeronautics of greater real value. Unfortunately the majority of teachers of aeronautics to-day are relatively young and somewhat specialised in outlook. Their general influence in educational councils tends therefore to be small, and the interest of a man of such wide experience and reputation as Dr. Walmsley is consequently a serious loss to the cause of aeronautics.

The Royal Aeronautical Society.

Chairman Elect.—At a meeting of the Council of the Royal Aeronautical Society held on June 17, Lt.-Col. H. T. Tizard, A.F.C., Fellow, was elected Chairman for the year 1924-1925. Colonel Tizard will assume office on Oct. 1.

Election of Members.—The following Members have recently been elected:—*Associate Fellows*: R. O. King, C. H. L. Needham, N. S. Norway. *Members*: C. L. M. Brown, D. E. Williams. *Students*: W. A. Crabbs, R. L. Mills. *Foreign Member*: A. P. Loening.

Examination.—Provided that sufficient entries are received, the Royal Aeronautical Society's examination for Associate Fellowship will be held on Monday, Sept. 22 (Part I) and Tuesday, Sept. 23 (Part II). Entry forms may be obtained from the Secretary at 7, Albemarle Street, W.1, and must be returned duly completed not later than Monday, Aug. 25.



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CONTROL WITHOUT OCCUPATION.—IV.

[The following is a continuation of the despatch (publication of which was begun on June 18) from Air Marshal Sir John Salmond concerning operations from Iraq to control hostile tribes in the vicinity without occupying their territory.—ED.]

57. On the 12th March I was able to examine the situation personally on all sectors of the threatened front travelling altogether some 550 miles.

58. From my Advanced Headquarters I was in personal touch with the acting High Commissioner at three hours' notice and could obtain by dropped and picked up message a report or appreciation from either Column in the same time. On one occasion my presence was required at Baghdad in the afternoon; I left Arbil at 4 p.m. and had returned there next morning by 8 a.m., having travelled over 400 miles.

59. Landing Grounds were selected up to four days' march into the hills over ground impossible for wheels. By means of these, either I or one of my Staff was able to discuss events personally with Column Commanders. Although many days' rain had rendered the ground boggy I was able to land at Rowanduz two days after the Column had entered it.

60. Where heliograph was almost useless R.A.F. Pack Sets enabled either Column to call my Headquarters at any time; and in addition kept a regular watch of 6 hours daily when the Columns were halted. On one occasion a supply of petrol and charged accumulators was dropped successfully to a Pack Set.

61. When the Columns were on the march and all other means of communication with them were, therefore, impracticable, messages dropped and picked up by aircraft kept the Column Commanders in close personal touch both with each other and with myself, and proved in practice the superior even of W/T in rapidity. A mounted air message section was improvised by Koicol.

62. Air messages from the Columns to co-operating aircraft were of unique value in insuring that special information required in regard to, for instance, dead ground, concealed positions, defiles and so on, was immediately furnished when otherwise considerable delay to the progress of the Column and arduous work for the troops would have been occasioned to get it.

63. At a most important juncture in the operations when the Columns were at Khaniwatman and Benawi respectively, and were preparing their plans for the combined advance to Rowanduz, an appreciation and operation orders were exchanged by air message between the two Columns, and I myself received a copy at the same time. This was notwithstanding very adverse weather conditions, and there was, moreover, at the time no other means by which the messages could have been exchanged.

Aircraft picked up in all some 120 messages.

64. Ration dumps under a strong guard had been established by Officer Commanding Koicol at his march stages. It was of considerable importance for him to know how his hired transport convoys had progressed and the ration state of each post. Aircraft provided the only means by which he could keep in touch with these posts. On one occasion questions were dropped on each post in turn and replies picked up and dropped to the Column Commander within two and a half hours.

65. On one occasion at least the Column was enabled to make very rapid marches through very difficult country because closely co-operating aircraft obviated the necessity of picqueting the heights commanding their line of march. This increase in their mobility proved a most important factor in the success of the operations. Aircraft in a similar way proved effective in checking sniping.

66. Over four tons of barley (a day's ration for the Column) were dropped by Vernons in one day. Although the country was in this case particularly unsuitable for such an operation, and little time had been available to make the best preparation, a considerable part of the total successfully reached the Column.

The wear and tear on boots and socks was prodigious and during the operations 1,000 pairs boots and 3,000 pairs socks together with a considerable quantity of similar stores, urgently required, were supplied by air.

I am confident that when this method of emergency supply has been more fully investigated and worked out it will prove a valuable asset for a Commander to have at his disposal in warfare of this type.

67. Some 200 dysentery and diarrhoea cases which had developed during the return march were evacuated by Vernons to Baghdad from Girde Tilleh, a point more than 60 miles from Arbil and some 200 miles from Baghdad. These cases must otherwise have had a six days' journey on donkeys and at the least have suffered severely. One Vernon while carrying sick made a forced landing in the most difficult country. A Medical Officer was skilfully landed at the machine by a Bristol Fighter, which also removed three of the serious cases. The remainder were brought into Koi Sanjak by donkeys whence they were evacuated by air. There must be many occasions in this type of warfare in which evacuation by air is the only possible satisfactory method.

68. The first phase of these Kurdish operations closed with the occupation of Rowanduz. I shall submit a further despatch in due course when their second phase, now in progress in the Sulaimaniyah area, has been concluded.

69. At their conclusion I will submit the names of Officers, Other Ranks and airmen especially deserving of mention or award, but I wish at this time to record the very valuable services which have been rendered throughout these operations by Colonel Commandant B. Vincent, C.B., C.M.G., Commanding Koicol.

70. It was undoubtedly due largely to his strenuous and determined personality and military skill, and to the hard marching by which he thrust his Column rapidly forward through every obstacle and difficulty, that Rowanduz was occupied without any serious loss to either column.

I have the honour to be, Sir, Your obedient Servant,

(Signed) J. M. Salmond,

Air Vice-Marshal, Air Officer Commanding British Forces in Iraq.

Air Headquarters,
British Forces in Iraq, Baghdad,

21st June, 1923.

From Air Marshal Sir John M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O.
Commanding British Forces in Iraq.
To the Secretary, Air Ministry, London.

Sir,

1. I have the honour to submit a despatch covering the period 28th April, 1923, 19th June, 1923, and describing certain combined air and Column operations in South Kurdistan.

2. In my last despatch I described the operations by which Rowanduz was occupied on the 22nd April; and the return of the Imperial Column (Koicol) to Serkhuma (12 miles North-East of Koi Sanjak) which was reached on the 28th.

3. As a result of these former operations the Turkish Troops under Euz Demir had been forced to cross the Persian Frontier on the 21st April and had been there disarmed by the Persian Military Authorities and sent back to Van. No Turkish irregular troops then remained in this area with the exception of a small party which had made its way South-Eastwards into the Naudasht Valley (18 miles N.N.E. of Kania) and which had also crossed into Persia by the Vasma Pass before the end of the month.

4. Shaikh Mahmoud, however, still remained obdurate. He had been endeavouring to raise a tribal lashkar in the Pishder Country and had declared a jihad; but the fall of Rowanduz and the collapse of the Turkish resistance, proclaimed throughout his neighbourhood by leaflets dropped from aircraft, together with the return of Koicol to Serkhuma, had effectually deterred the Pishder tribes from rallying to his support.

5. Shaikh Mahmoud was known, however, though disappointed of Turkish backing, still to have hopes of maintaining himself as the ruler of an independent South Kurdistan. He was well supplied with money, foodstuffs and ammunition; and had established and already partly organised the nucleus of an irregular force.

With this force and with these resources he might well hope to raise a tribal following with which to resist any attempt to subdue him.

6. Until his prestige and influence in the Sulaimania Valley should be checked, and the organisation which he had created around his Headquarters in the Mirgah-Serdash district should be destroyed, there could be little prospect that the neighbouring division of Kirkuk would enjoy an undisturbed administration.

7. Plans were accordingly prepared for the onward march of Koicol via Altun Keupri and Kirkuk to Sulaimania and arrangements made to re-organise the Column with three fresh Battalions and to refit at Kirkuk. The Column marched from Serkhuma on 1st May.

8. Meanwhile proclamations were dropped by aircraft throughout the area to which Shaikh Mahmoud looked for his tribal support, declaring the intention to occupy Sulaimania; and independent air operations were renewed against his Headquarters and those villages occupied by the irregular forces which he had formed.

It was without doubt largely due to those air attacks directed against Shaikh Mahmoud and his forces that he was unable either to perfect his organisation or to raise the tribes for resistance to the Column.

9. Orders for the combined operation were delivered by air to the Column and on the 8th of May my Chief Staff Officer visited the Column by air on its arrival at Kirkuk. On this day, in consequence of reports of certain hostile movements on the Northern Frontier in the Khabur district, I had myself flown to Mosul to consider their import in conjunction with the local Commander and returned on the morning of the 9th. The Column Commander, Colonel Commandant B. Vincent, C.B., C.M.G., was flown to Baghdad to discuss with me the plans for the subsequent operations, and on the 11th May returned by air to the Column.

10. As the refit of the Column had been completed, and as all troops, except a small draft, had already reached Kirkuk the Column marched out on the 12th May, the draft overtaking it the same evening in Armoured Car Transport.

11. Shaikh Mahmoud had meanwhile returned to the vicinity of Serdash; and his forces had supporters including Karim Fatah Beg, the outlaw Hamanai chieftain, against whom a Column had operated throughout the summer of 1922, were distributed partly in that area and partly to the West of Sulaimania.

No tribes as yet had joined him but any hesitancy or want of success on our part would have brought them flocking to his standard. It was to be expected that if he could raise the necessary force he would oppose the Column at the Bazian or Tasluja Passes, at the former of which he had in 1919 offered resistance to a British Column.

12. The Bazian Pass, the only gateway through the Kara Dag is a V-shaped gap in the range of hills, some 50 yards wide, from which the ridge on either side slopes steeply up. The Western slopes on both sides are extremely steep and their surface rough and stony and covered with large boulders and outcrops of crop.

The crest of the ridge affords excellent cover against both shrapnel and rifle fire whilst the ground to the West is undulating but otherwise open and devoid of cover. To outflank the Pass a considerable detour would be necessary over intricate ground.

13. It was undoubtedly the intention to oppose the Column at this Pass but the rapidity with which the Column had reached Kirkuk, refitted and approached the Pass, together with the effect of the independent air attacks, had left Shaikh Mahmoud no time to perfect his plans.

(To be continued.)

The Japanese Fleet Air Arm.

A Reuter message from Tokyo dated July 7 states:—

Speaking in the Diet to-day, Admiral Takarabe, Minister of Marine, said the world situation demanded that Japan should further expand the air arm of her navy. He recommended, provided the necessary funds could be appropriated without unduly swelling the Estimates, the creation of eleven squadrons in addition to those already embodied in the present programme.

Sir W.G.
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THE ROYAL AIR FORCE.

The London Gazette.

Air Ministry, June 24.

GENERAL DUTIES BRANCH.—Flg. Off. H. P. Strong is placed on the retired list on account of ill-health (June 25); Obs. Off. J. F. H. Stevens is placed on the retired list (June 25). The follg. resign their S.S. commns. (June 25):—Flg. Off. T. A. Verney-Cave; Plt. Off. R. E. Bath; Flg. Off. Q. A. Kennedy (Lt., R.G.A.), relinquishes his temp. commn. on return to Army duty (June 11); Flg. Off. J. E. V. Lindsey (Lt., Argyll and Sutherland Highrs.) to take rank and prec. as if his appt. as Flg. Off. bore date Sept. 7, 1922. Reduction to take effect from May 30.

MEDICAL BRANCH.—Flg. Off. V. S. Ewing, M.B., is promoted to the rank of Flt. Lt. (June 21).

RESERVE OF AIR FORCE OFFICERS.—The follg. offrs. are promoted to the ranks stated (June 24):—Flg. Off. to be Sqdn. Ldr.—C. E. C. Rabagliati, M.C., A.F.C. Flg. Offs. to be Flt. Lts.—H. Hemming, A.F.C., J. O. Groves, S. H. Gaskell, W. D. Thom, D.F.C., B. C. Rice, M.C., A. R. Boeree, A. N. Kingwill, A. F. Marlowe, L. Reynolds, T. A. Gladstone, A.F.C., P. A. F. Belton, A. C. Ferguson, F. G. Saunders, M.C., R. M. Clifford, J. L. N. Bennett-Baggs. The follg. offrs. are confirmed in rank, with effect from the dates indicated:—Flg. Offr.—H. P. Dean (May 29). Plt. Off.—A. J. Black (June 1).

Air Ministry, July 1.

GENERAL DUTIES BRANCH.—Flt. Lt. H. S. Broughall, M.C., is granted a perm. commn. in the rank stated; July 2.

The following are granted S.S. commns. as Flg. Offs with effect from, and with seniority of, June 19, 1924: C. V. Leck and S. Wallingford. Flg. Off. T. S. Jobling, D.S.M., resigns his perm. commn.; July 2.

STORES BRANCH.—B. J. L. Gordon-Inglis (Paymaster-Lt., R.N., ret.), is granted a S.S. commn. as a Plt. Off. on probation for accountant duties, June 25. The S.S. commn. of Plt. Off. on probation F. L. Brown is terminated on cessation of duty; June 30.

MEDICAL BRANCH.—Flt. Lt. V. S. Ewing M.B., is granted a perm. commn. in the rank stated; July 2. S. S. Proctor, M.B., is granted a S.S. commn. as a Flg. Off., with effect from, and with seniority of, June 17.

RESERVE OF AIR FORCE OFFICERS.—Flt. Lt. D. A. Stewart, M.C., D.F.C., A.F.C., is employed with the Regular Air Force for a further period of one year; June 1.

The commissions of the following officers on probation are terminated on cessation of duty, with effect from the dates indicated: Flg. Off. W. Munn, May 23; Plt. Off. A. A. Downs, May 10.

MEMORANDA.—The permission granted to Lt. F. Little to retain rank is withdrawn on his enlistment in the Canadian Air Force.

The permission granted to Lt. A. L. Harrow-Bunn, M.C., to retain rank is withdrawn on his conviction by the Civil Power; June 4.

Appointments.

Week ending July 1.

GENERAL DUTIES BRANCH.—Squadron Leader A. A. Walser, M.C., D.F.C., to No. 28 Sqdn., India, instead of to No. 31 Sqdn.

Flight Lieutenants F. H. E. Reeve, to H.Q., Egypt, 16/6; H. L. Nunn, D.S.C., D.F.C., to C. and M. Party, Isle of Grain, 16/6; R. S. Capon, to Aeroplane and Arm. Exper. Estab., Martlesham Heath, 1/7.

Flying Officers S. T. B. Cripps, D.F.C., to No. 19 Sqdn., Duxford, 20/6; R. F. Casey, D.F.C., to R.A.F. Depot, on transfer to Home Estab., 31/5; S. J. Mason, to No. 19 Sqdn., Duxford, 18/6.

MEDICAL BRANCH.—Squadron Leaders (Medical) D'A. Power, M.C., to Central Medical Board, Hampstead, 12/7; B. F. Beaton, D.T.M., to No. 1 School of T.T. (Boys), Halton, 10/7. Flight Lieutenants (Medical) T. R. S. Thompson, M.B., to R.A.F. Depot, on transfer to Home Estab., 4/6; C. A. E. I. Brownlee, M.B., to R.A.F. Base, Leuchars, 9/7; A. W. Comber, to Marine Aircraft Exper. Estab., Felixstowe, 1/7. Flying Officers (Medical) A. Dickson, M.B., and A. A. Townsend, M.B. to R.A.F. Depot, 25/6 H. W. Corner, M.B., to Research Laboratory and M.O.S. of I., Hampstead, on appointment to a Short Service Commission for short course, 24/6.

Week ending July 7.

GENERAL DUTIES BRANCH.—Group Captain P. F. M. Fellowes, D.S.O., to R.A.F. Depot pending disposal on transfer to Home Estab., 16/6.

Wing Commander A. C. Winter, O.B.E., to Air Ministry for Air Staff duties, 28/7.

Squadron Leaders P. Dabington, M.C., A.F.C., to No. 19 Sqdn., Duxford, 28/7; W. H. Dolphin, to R.A.F. Depot, on transfer to Home Estab., 16/6.

Flight Lieutenants R. S. Lucy, A.F.C., to Superintendent of Reserve, Northolt, 15/7; L. A. K. Butt, to R.A.F. Depot, 1/7; J. L. Vachell, M.C., to School of Army Co-operation, No. 16 Sqdn., Old Sarum, 23/6; C. E. Godsave, to R.A.F. Depot, 15/6; J. R. I. Scambler, A.F.C., to No. 13 Sqdn., Andover, 10/6; J. S. T. Fall, D.S.C., A.F.C., to Aircraft Depot, Egypt, 19/6; A. MacGregor, D.F.C., to H.Q., Iraq, 12/6.

Flying Officers J. V. Reeve, to Engine Repair Depot, Egypt, 19/6; H. Tanner, to No. 13 Sqdn., Andover, 26/6; R. H. Wathes, to R.A.F. Depot on transfer to Home Estab., 16/6; J. Bowen, to R.A.F. Depot on transfer to Home Estab., 29/5.

MEDICAL BRANCH.—Squadron Leader (Medical) H. B. Porteous, M.B., to No. 7 Group H.Q., Andover, 7/7. Flight Lieutenant (Q.M., Medical) J. M. Maxwell, to R.A.F. Hospital, Cranwell, 8/7. Flying Officer (Medical) A. Dickson, M.B., to No. 4 Sqdn., S. Farnborough, 28/6.

STORES BRANCH.—Flight Lieutenant (Accountant) R. F. C. Metcalfe, to No. 4 F.T.S., Egypt, 6/5.

The Half-yearly Promotion List.

The Air Ministry announces that the undermentioned officers are promoted to the ranks stated with effect from July 1, 1924:—

GENERAL DUTIES BRANCH.—Group Captain to be Air Commodore:—A. M. Longmore D.S.O.

Wing Commanders to be Group Captains:—W. G. S. Mitchell C.B.E., D.S.O., M.C., A.F.C., R. P. Ross D.S.O., A.F.C.

Squadron Leaders to be Wing Commanders:—J. W. Cordingley O.B.E., Hon. L. J. E. Twisleton-Wykeham-Fiennes, J. C. Quinell D.F.C., C. E. Maude, A. A. Walser M.C., D.F.C., J. P. C. Sewell O.B.E., S. W. Smith O.B.E., C. C. Miles M.C., T. W. Mulcahy-Morgan M.C., L. D. D. McKean O.B.E., F. L. Robinson D.S.O., M.C., D.F.C.

Flight Lieutenants to be Squadron Leaders:—William Sowrey, D.F.C.,

A.F.C., with seniority of Jan. 1, 1924, immediately below Sq. Ldr. O. G. W. G. Lywood O.B.E., C. E. H. Medhurst O.B.E., M.C., H. Stewart, H. K. Thorold D.S.C., D.F.C., A.F.C., J. O. Andrews, D.S.O. M.C., A. Lees, E. D. Johnson A.F.C., R. H. G. Neville M.C., C. J. W. Darwin D.S.O., P. B. Hunter, A. P. V. Daly, F. J. Linnell O.B.E. E. J. P. Burling D.S.C., D.F.C., G. D. Nelson D.S.C., A.F.C., C. A. Rea A.F.C., C. H. Keith, W. B. Farrington D.S.O.

Flying Officers to be Flight Lieutenants:—H. F. Bradley, E. P. Davis A.F.C., A.M., G. H. Harrison D.F.C., O. E. Carter, L. J. Riord A.F.C., K. A. Meek M.B.E., J. W. Young M.B.E., C. R. Strudwick R. B. Sutherland D.F.C., S. E. Storrar, C. N. Ellen D.F.C. J. H. Winch, C. A. Elliott, A. C. B. Harrison M.C., W. Jones, P. A. de Fontenay D.F.C., E. J. A. Burke, C. E. Maitland D.F.C., J. R. Bel D.F.C., H. S. Broughall M.C., H. E. Searson D.F.C., G. C. O'Donnell D.F.C., J. K. A. Jeakes D.F.C., W. E. G. Mann D.F.C., J. Oliver A.F.C. J. J. Lloyd-Williams M.C., A. J. Warwick, A. A. Ward, J. G. Horne J. F. T. Barrett, J. D. Breakey D.F.C., L. M. Hilton D.F.C., S. D. Macdonald D.F.C., H. I. T. Beardsworth, N. L. Desoer, T. M. Williams M.C., D.F.C., G. R. Ashton, E. F. Waring D.F.C., W. A. B. Savile J. I. T. Jones D.S.O., M.C., D.F.C., M.M., S. A. Turner M.B.E. V. E. Groom D.F.C., W. Halford D.F.C., G. B. Holmes, J. Blackford.

STORES BRANCH.

Squadron Leader to be Wing Commander:—E. J. Sayer M.C. Flight Lieutenants to be Squadron Leaders:—T. Fawdry M.B.E. W. C. Clark, T. G. Skeats, T. Bell M.M.

Flying Officers to be Flight Lieutenants:—H. Jones, A. T. Shaw F. J. W. Humphreys, F. J. B. Powell M.B.E., W. A. Gasper.

ACCOUNTANTS.

Squadron Leader to be Wing Commander:—J. Rylands. Flight Lieutenant to be Squadron Leader:—R. Whyte. Flying Officers to be Flight Lieutenants:—W. E. Fisher M.C., J. H. B. Carson.

MEDICAL BRANCH.

Squadron Leaders to be Wing Commanders:—W. W. Shorten F.R.C.S. (E), F. N. B. Smartt M.B., B.A.

Flight Lieutenants to be Squadron Leaders:—T. Montgomery M.D. D.P.H. B.A., H. I. Burton M.B.

Flight Lts. to be Hon. Sq. Ldrs. —J. Craig M.D., H. C. Perkins.

PRINCESS MARY'S R.A.F. NURSING SERVICE.

Senior Sister (Acting Matron) to be Matron:—Miss M. W. Campbell Sister to be Acting Matron:—Miss W. E. Molesworth. Staff Nurse to be Acting Sister:—Miss E. Spensley A.R.R.C.

Airship Appointments.

The Air Ministry have made the following appointments to Cardington Airship Works in connection with the airship construction programme recently announced:—

Director of Airship Development.—Group Captain P. F. M. Fellowes D.S.O.

Deputy in Charge of Planning.—Squadron Leader R. B. B. Colmore O.B.E.

Officer in Charge of Flying.—Major G. H. Scott, C.B.E., A.F.C.

Officer in Charge of Design and Construction.—Mr. H. B. Wynn Evans, M.B.E., (Hon.) R.C.N.C.

Head of Design and Research Section.—Lieut.-Colonel V. C. Richmond, O.B.E.

Works Manager.—Mr. R. F. Hubbard.

The Court Circular.

St. James's Palace, July 2.

The Prince of Wales, attended by Vice-Admiral Sir Lionel Halsey, was present at a Garden Party which was given by Air Chief Marshal Sir Hugh and Lady Trenchard at Dancer's Hill House, Barnet, this afternoon.

[The Garden Party was given for the Royal Air Force and for the Royal Scots Fusiliers of which Sir Hugh Trenchard is Colonel.]

The Secretary of State for Air.

The Times correspondent writing from Paris on July 1 states:—

Brigadier-General Lord Thomson, the British Air Minister, who arrived in Paris by aeroplane yesterday, will have a conversation with General Nollet, the French Minister for War, to-morrow.

The R.A.F. at Bisley.

The various Services' Rifle Associations are holding their annual shooting meetings simultaneously and practically a one common centre. The R.A.F. are firing their rifle practices on the adjoining military ranges at Pirbright, their pistol and revolver matches will be shot on the Bisley revolver ranges.

The R.A.F. will in the course of the week decide its individual and team rifle championships, and by means of a revolver competition it will select the representative eight to shoot at the N.R.A. meeting for the Whitehead Cup. In addition, the R.A.F. has a competition of its own, in which the weapon is the automatic pistol. This match opened their meeting on June 30.

The R.A.F. Automatic Pistol Championship was won by Wing Cmdr. R. J. Barton (Cranwell), who took the Challenge Cup, R.A.F. Rifle Association silver medal, and N.R.A. bronze medal, with a total of 98 points. The next score were Flt. Lt. J. L. K. Pearce (Cranwell), R.A.F. Rifle Association bronze medal, 95 points; Flg. Off. L. J. Riordan (Shotwick), 80; Flg. Off. H. C. Calvey (Uxbridge), 79; Flg. Off. E. M. Drummond (Cranwell), 77; Flt. Lt. R. A. Cochran (Cranwell), 76.

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Some extracts concerning the recent flight of 8,500 miles round Australia from "The Aeroplane" of May 22nd, 1924, entitled

"ON THE AUSTRALIAN TRIUMPH"

"A performance which may fairly be claimed as the finest flight in the history of aviation."

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England to Australia	11,500 miles
England to S. Africa	6,281 miles
England to Sweden (and back)	2,450 miles
England to Constantinople	2,160 miles
Across the Atlantic	1,890 miles
England to Finland	1,100 miles
England to Warsaw	1,050 miles
England to Madrid	855 miles

These flights were accomplished without any change of engines en route

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The first stage of the R.A.F. Championship was concluded on July 1, leaving Flt. Lt. J. L. K. Pearce (Cranwell) at the head of the list with 115 points. Cpl. Easton (Gosport) was second with 113 and Flt. Lt. Ivens (Halton) third with 112 and Wing Cmdr. Grant-Dalton (Uxbridge) fourth with 111. Sixty-six competitors by making 90 points or over qualified to shoot in the final stage.

The first prize-winners at the four ranges at which the practice was fired were as follows:—At 600 yds. Cpl. Edwards (Gosport). At 500, Flg. Off. R. S. Greenslade (Shotwick). At 300, Plt. Off. A. W. G. Martin (Shotwick). At 200, Flt. Lt. Pearce (Cranwell).

The Championship was won on July 2 by Wing-Cmdr. Grant-Dalton with 107 points out of a possible 150. Wing-Cmdr. Grant-Dalton won the Aldershot Command rifle championship nearly 20 years ago. The second prize was won by A. C. Tooner (Cranwell) and the third prize by Flt. Lt. Pearce.

Air Vice-Marshal Sir V. Vyvyan, in presenting the prizes, very justly eulogised the scores made under such adverse conditions and he predicted that very soon the musketry standard of the Air Force would bear comparison with the standards of the older Services, since the Air Ministry has now sanctioned a musketry course. The other Services, he said, might not agree with him, but personally he thought they did not have to work as hard as members of the R.A.F., and consequently had more time for shooting; but, leisure or not, the Air Ministry intended to encourage shooting in the Force.

On July 3 the R.A.F. fired the inter-station match for the Chief of the Air Staff Cup at Pirbright. There were several showers of rain during the afternoon and in the morning the targets were often obscured by clouds of sand. The result was:—

Teams of eight; ten shots snap and ten rapid per man at 300 yards; ten shots deliberate at 600 yards; h.p. collective score, 1,200 points.—1. Shotwick, 694 points; 2. Eastchurch, 678; 3. Halton, 659; 4. Cranwell, 657; 5. Uxbridge, 556; 6. Manston, 544; 7. Calshot, 536; 8. Felixstowe, 515; 9. Upavon, 385.

The Royal Air Force Revolver Championship.—Twelve rounds rapid at 10 yards; 12 rounds rapid at 20 yards; 12 rounds in 2 mins. at 20 yards; 12 rounds in 2 mins. at 50 yards; h.p.s., 240 points:—1 (after tie shoot), R.S.M. Trewin, Halton, 224 points; 2, Flt. Lt. Smith, Halton, 224 points; 3, Wing. Cdr. R. F. Barton, Cranwell, 212 points; 4, Wing Cdr. S. Grant-Dalton, Uxbridge, 211 points; 5, Wing Cdr. Darley, Uxbridge, 203 points.

No. 100 Squadron.

It is proposed to hold a Reunion Dinner in London for officers of 100 Squadron during the second half of September. Will anyone interested send their address and those of any other old members available to Flt. Lt. C. B. Dick-Cleland, R.A.F., Andover?

Inter-Services Athletics.

The Inter-Service Athletic Championships were held, in admirable conditions, at Chatham, when the Army proved successful with an aggregate of 24 points, the Royal Navy and the Royal Air Force each scoring 15.

The results were:—

Two Miles Relay.—The Army, 1; Royal Air Force, 2; Royal Navy, 3.
Quarter-Mile.—The Army, 1; Royal Navy, 2; Royal Air Force, 3.
360 Yards Hurdles.—The Army, 1; Royal Air Force, 2; Royal Navy, 3.
High Jump.—The Army (Lt. Willis, 6 ft. ½ in.), 1; Royal Air Force (Flg. Off. Nuttall, 5 ft. 11½ in.), 2.
One Mile Team Race.—Royal Air Force (AC. Turner, AC. Morgan, AC. Corfe, and AC. Clarke), 1; The Army, 2; Royal Navy 3. Won by inches. Time, 4 min. 38 1/5 secs.
Putting the Weight.—The Army, 1; Royal Air Force, 2; Royal Navy, 3.
One Mile Relay.—Royal Navy, 1; The Army, 2, Royal Air Force, 3.
Long Jump.—Royal Navy, 1; The Army, 2; Royal Air Force, 3.
Three Miles Team Race.—The Army, 1; Royal Navy, 2; Royal Air Force, 3. The Army runners finished abreast, 40 yards in front. Time, 15 min. 49 sec.

Cricket.

R.A.F. v. R.A.—The R.A.F. drew with the Royal Artillery at Woolwich on June 26, being 106 runs behind at the close of play with only one wicket to fall.

The R.A.F. scores were:—

L. F. Marson, b. Hill, 19, c. Rawson, b. Clarke, 29; R. E. Bain, l.b.w., b. Clarke, 6, b. Clarke, 27; Sq. Ldr. C. H. B. Blount, c. Clarke, b. Hill, 17, l.b.w., b. Armitage, 13; C. G. Wigglesworth, c. Hugonin, b. Medill, 3, c. Hugonin, b. Armitage, 35; E. Thornton, b. Medill, o, b. Baines, o; E. A. Fawcus, c. Hugonin, b. Hill, 4, c. Rawson, b. Medill, 32; E. A. Lister-Kaye, b. Hill, 33, b. Baines, 13; B. C. W. Windle, c. Gardner, b. Baines, 30, b. Baines, 5, C. D. Adams, b. Rawson, 7, not out 13; R. S. Sugden, not out 25, l.b.w., b. Baines, o; Wing Cdr. W. G. S. Mitchell, b. Armitage, 7, not out 3. Byes, 8; l.b., 10, w., 1; 19. Byes, 4; l.b., 1; 5.

Total, first innings, 170. Total, second innings, 175 (9 wickets).

R.A. Total, first innings, 216. Total, second innings, 235 (4 wickets) declared.

Air Affairs in Parliament.

AIR OPERATIONS IN IRAQ

In the House of Commons on June 30, in reply to a series of questions by LT-COMMANDER KENWORTHY, the UNDER-SECRETARY OF STATE FOR AIR said that a few disturbances had occurred in Iraq since the present Government took office. The only one of any seriousness was that which took place at Kirkuk on May 4. There were slight disturbances at the end of March in the Sulimaniyah region, where a chief defied the Iraq Government but withdrew after air action on a small scale had been taken. There had also been some unrest in the Afaj district where three native policemen were killed on Apr. 25. Slight air action had been taken and the leaders of the offending tribes had surrendered.

With regard to the air raiding at Sulimaniyah an effort had been made by a disaffected chief to stir up trouble following the Kirkuk incident. No fighting had taken place but as the chief had refused to surrender his headquarters had been bombed after due warning. The situation had since been normal.

LIEUT.-COMMANDER KENWORTHY asked MR. LEACH to define "slight air action."

MR. LEACH: Possibly one aeroplane not dropping any bombs but merely warning notices.

On July 3, in the House of Commons, the UNDER-SECRETARY OF STATE FOR AIR, replying to MR. LANSBURY, said that during the past five months bombs had been dropped on five occasions in Iraq and in all cases except one, not less than two days' warning was given. The objectives were encampments and grazing grounds of the offending tribes. The case where no warning was given was one of an attack by tribes on native police. MR. LEACH said that in this period there had been no casualties to the R.A.F. in Iraq during bombing operations. No casualties inflicted by the operations had been reported to Air Headquarters. MR. LEACH explained that in areas where violence is habitual, air action, however regrettable the necessity for it, in many cases checks at an early stage disturbances which would otherwise cause great loss of life. To illustrate his explanation, MR. LEACH mentioned a recent frontier raid in Iraq in which 146 men and 127 women and children were killed by a tribe of the same type as the one on whom MR. LANSBURY was expending his sympathy. In the course of this raid all male prisoners were put to death. MR. LEACH added that this kind of raid with its consequent loss of life had been almost entirely abolished by the Air Force.

A CHANNEL SEAPLANE SERVICE.

On July 3, in the House of Commons in reply to a question by LORD APSLEY, the UNDER-SECRETARY OF STATE FOR AIR said that the preliminary negotiations which had been opened with the French authorities in regard to the establishment of a seaplane service from Southampton to Cherbourg and other French ports had not been brought to a conclusion because in view of the experimental nature of the employment of this type of aircraft on regular air transport services it had been considered necessary to confine operations in the first instance to the Southampton-Guernsey service. LORD APSLEY said that experiments had been going on for over a year and had proved eminently successful and he thought the matter should be expedited before the holiday season was over. MR. LEACH replied that he could only hope that Imperial Airways Limited would carry out the Noble Lord's suggestion.

NIGHT FLYING IN TROPICAL AREAS.

In a written answer to a question by SIR F. SYKES on July 3, the UNDER-SECRETARY OF STATE FOR AIR stated that there was no present intention of operating the Cairo-Baghdad Air Route by night, but night flying was carried out as a regular part of the training of the air squadrons in the Middle East generally and in India. Any data derived from the experience of the squadrons in those areas was at the disposal of the Dominion Governments.

Lighter than Air.

The Times of July 4 states:—

The contract offered by the Air Ministry to the Burney Airship group for the construction of a five million feet cubic capacity airship, designed to fly to Egypt and India, will be signed in a few days, and once this is formally completed will proceed on the ship.

Howden is to be the base for this airship construction, and it is expected that probably two years will be required for its completion.

Cardington, near Bedford, is, of course, now retained by the Air Ministry as its centre of operations, and a staff is gradually being collected. Some of the members are already there, and the first business will be to overhaul R.33, in order to carry out certain tests upon which to check data. As this vessel has not been flown for two years a certain amount of time must elapse before any tests can be carried out.

The only other airship which is likely to be kept in reserve for possible use is the R.36, which is at Pulham, and repairs to the nose of the vessel would be required before she could be made serviceable.

One may add that one hopes that the Burney group have had the good sense to come to an arrangement with the Zeppelin Company to have the use of Zeppelin technical knowledge. Any Zeppelin engineer knows more about the design and construction of rigid airships than do all our alleged experts put together. So we shall be very unwise if, for the sake of a few thousands of pounds, we carry out dangerous experiments to discover knowledge already possessed by our German friends.

An Interesting Visitor.

Major N. Brearley, Managing Director of Western Australian Airways Limited is due to arrive in England in the middle of July on a business trip.

He will be inquiring into many things connected with aviation matters and hopes to meet his wartime friends.

His London address will be care of The Agent General for Western Australia, Savoy House, Strand, W.C.2.

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Vickers "Vanguard."

*The above illustration shows a Vickers "Vanguard" (23 Passenger)
Aeroplane fitted with two Napier "Lion" Engines.*

AIRCRAFT.

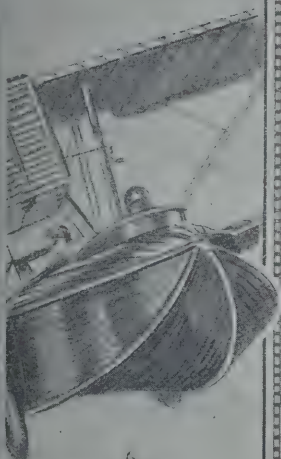
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AN ALL-METAL FLYING-BOAT HULL ON TEST.

The Aeromarine flying boat Morro Castle II, which is fitted with an experimental all-metal hull arrived in New York harbour on the afternoon of May 27 after having flown from San Juan, Porto Rico, at the end of a four months' test cruise carried out for the purpose of testing the new hull—which is the first light alloy flying boat built in America.

The machine left New York on Jan. 16, and in the interval flew about 14,000 miles. Her total mileage since completion in June 1923 is about 22,000. On the trip the boat carried about 100 lbs. of engine spares and small parts, and no calls for further supplies were made. During the whole trip all work on the machine was carried out by the crew, consisting of the pilot, C. J. Zimmerman, and a mechanic, and at none of the harbours used was any advance preparation made for the reception of a flying boat. Every kind of climatic condition was encountered from the winter of New York to the summer of Cuba.

The crew (pilot C. Z. Zimmerman and mechanic Floyd Whalton) before starting on the trip agreed to finance the flight out of receipts from passenger-carrying. The factory advanced \$500, but by the time they reached Matanzas, Cuba, on Jan. 29, the expenses amounted to \$528, and the crew were short of a week's pay. They therefore started work and on their first day took four passengers at \$10 each for a ten-minute flight. Next day the price was reduced to \$5 a head, which proved much more popular and within six days they had not only cleared expenses, and provided a sum for working capital, but were able to remit \$1,400 to the factory. Altogether between Jan. 31 and April 1 the receipts from passenger-carrying amounted to \$6,144.

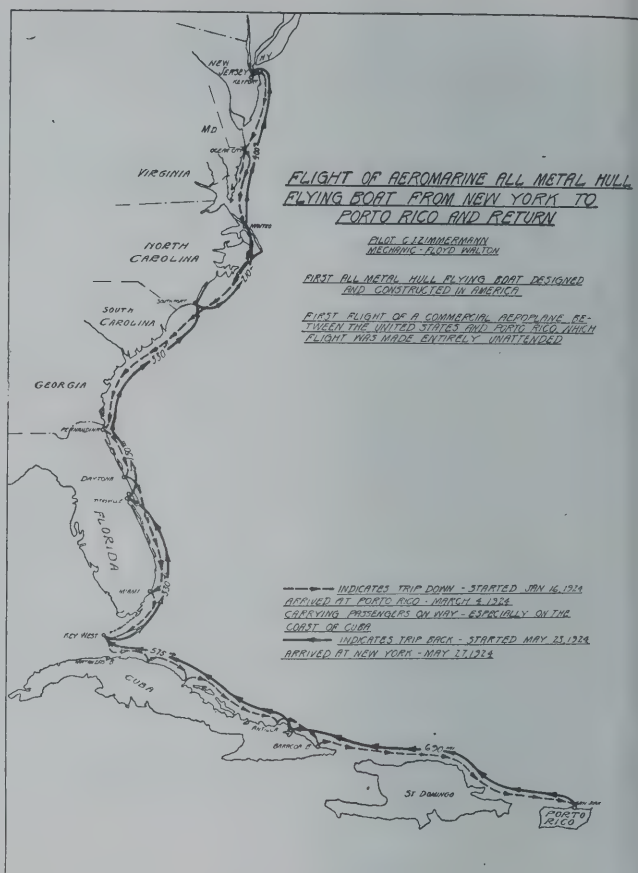
At various times a total of 3,000 passengers were given flights, and between Jan. 29 and Mar. 4 operating on the coast of Cuba passengers were carried on every day except two—which is evidence of the little maintenance required by this machine. On two occasions landings had to be made in the open sea in very rough water—once at Baracoa where the harbour is so small and so surrounded by hills that Mr. Zimmerman could not get into it, and once off Porto Rico, where a forced landing caused by running out of fuel was made.

During the latter part of the trip the boat was made to fall in with an American fleet manoeuvring off Porto Rico in order to demonstrate the practical nature of this type of hull under service conditions at sea, with eminently satisfactory results.

On April 2 at San Juan a derrick was hired and the boat lifted out of the water for a general overhaul. It was found that not only barnacles but oysters were growing on the hull aft of the step. Beyond this the hull was in very satisfactory condition. The mechanic and a negro assistant then put in four weeks' scraping and painting the hull and all fittings, wires, etc. After this overhaul some thirty hours' flying was done before starting for home.

It is held that the metal hull in this case has amply demonstrated its ability to stand up to the roughest usage, to live in the water without warping, and to stand the worst climatic variations without warping, cracking or splitting, and the pilot, Mr. Zimmerman, claims that with no other flying boat could he have duplicated this particular performance. As a result of his experience he feels that there is no insuperable difficulty in running a commercial flying boat service between New York and Porto Rico with only one intermediate stop at Bermuda, and in making it profitable at normal steamship fares.

This performance must be regarded as an extremely interesting experiment, and would seem to indicate that the difficulties of overcoming the corrosion of light alloys in sea water have in this case been overcome. The material of



which this hull is built is an alloy known as 17.S., in composition and qualities extremely similar to duralumin, and presumably as liable to corrosion as that alloy if not correctly heat treated and protected.

It may however be pointed out that in making a comparison with wooden flying-boat hulls Mr. Zimmerman presumably has in mind hulls of the Curtiss type—which, like their near relatives the F boats, are largely built of three-ply. Apart from a certain facility in construction three-ply is about the worst possible material for hulls. Also in America as in this country a standard practice with wooden hulls is to keep them out of the water as much as possible.

There is a good deal of evidence that even a three-ply hull stands up fairly well if it is kept in the water except when it is actually flying, and that the extent to which water is soaked up is then very greatly reduced. There is very little doubt that a modern British boat-built hull would stand up to service such as that described above very much better than would a hull of the Curtiss type, and that the Aeromarine metal hull could not claim quite so great a saving in weight against this type of boat.

Nevertheless the Aeromarine performance is fairly conclusive proof that the metal hull can be made to stand up to any class of work which the wooden hull will perform, and it is obviously free from any trouble caused by soakage. This trouble may be extremely serious in the wooden hull unless very great care is taken in the selection of material and in the workmanship, and it can scarcely be avoided entirely under any circumstances.



CAMPING WITH A SEAPLANE.—

The Aeromarine metal hull flying boat ashore for scraping and painting at San Juan (Porto Rico) during the extensive and self-supporting cruise which is described above.

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We have a fully equipped 4-foot Wind Channel available for model experiments.

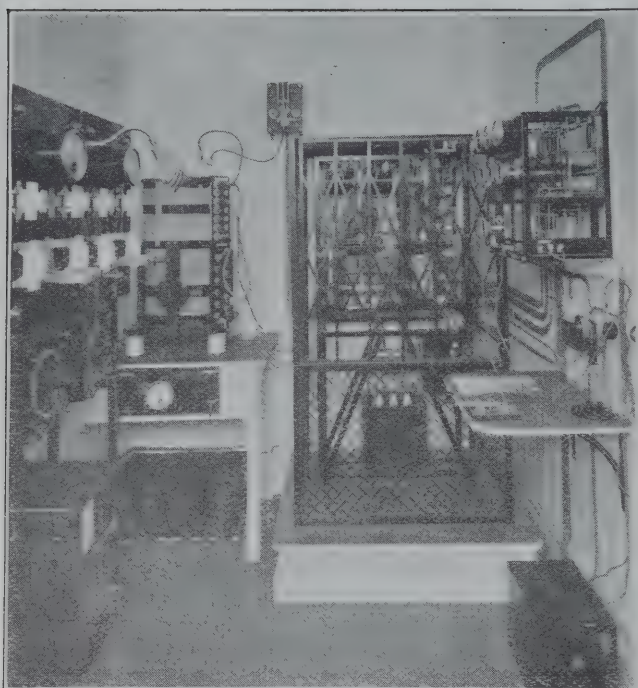
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WIRELESS FOR AIRCRAFT.



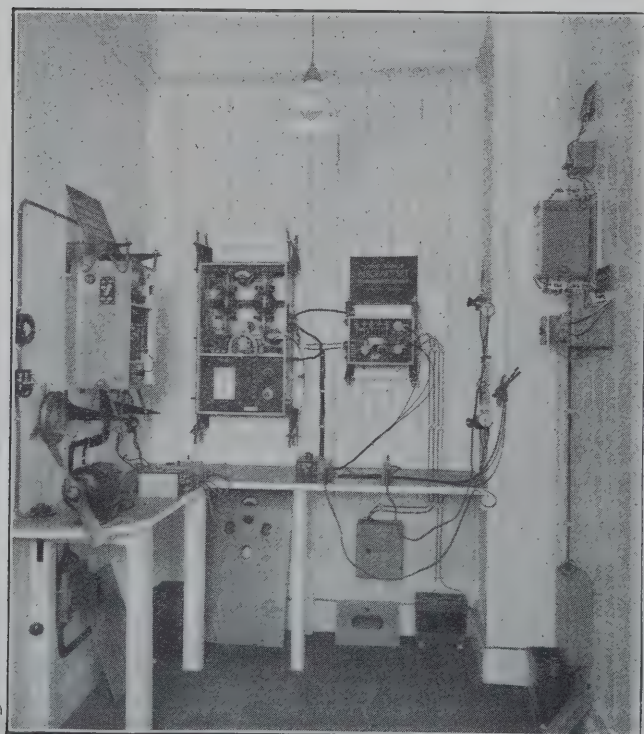
The Marconi Aerodrome Transmitting Station of $1\frac{1}{2}$ kw. capacity.

The importance of proper wireless communication between aeroplane and the ground has been frequently stressed in this paper. There is unfortunately a very small demand for wireless gear for aircraft purposes, and therefore presumably little profit to be made from supplying the necessary equipment.

Nevertheless it has seemed good to the Marconi Company to give a good deal of time and trouble to the development of satisfactory equipment for wireless stations for the use of aircraft, and it is a fact that at the present moment all British commercial aircraft are equipped with Marconi gear. There can be little doubt that the go-ahead policy of this particular firm will reap its due reward when Commercial Aviation develops into a serious business.

The illustrations here reproduced give an idea of the types of apparatus now provided by the Marconi Company.

The first photograph shows the U type aerodrome transmitting station of $1\frac{1}{2}$ kw. capacity. On the extreme left



Marconi wireless equipment for aircraft.

will be seen the switchboard for the control of the power supply from the lighting and power circuit of the aerodrome.

On the extreme right above the operator's desk is the switchboard controlling the actual wireless apparatus. In the cage to the rear the whole of the high-tension gear is arranged, the cage protecting operators or other denizens of the station from accidental contact with high-tension conductors.

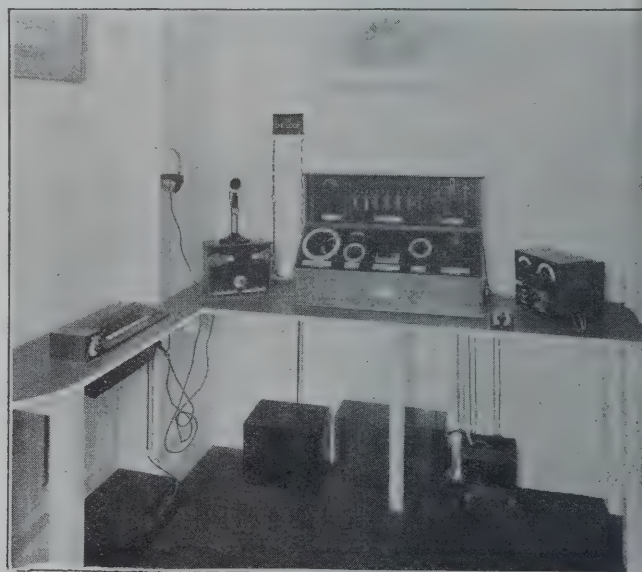
The station is adapted equally for telephonic or telegraphic transmission, and the actual operator may be removed to any distance from the transmitting gear proper. In this case the switchboard here shown above the desk is replaced by a remote control gear.

The second photograph shows an aerodrome receiving cabin. In the centre is a type 12A receiver, which combines ordinary reception and a direction-finding gear. The change from directional to "all-round" reception is made by a single switch. The remote control switchboard for the transmitting station is shown on the shelf to the left. Below the standard microphone is a line amplifier, and on the right is a local oscillator used for receiving continuous wave telegraphy.

The third photograph shows apparatus for use on the aeroplane itself. On the left wall is a type A.D.6 combined transmitting receiver with aerial winch, air-driven generator, etc. This is the normal equipment for commercial aeroplanes.

At the back is the type A.D.8 long-range aeroplane transmitting set of $\frac{1}{2}$ kw. capacity, with a separate receiving set to the right of it. These sets can both be placed in any convenient position in the machine, and controlled at a distance by the switchgear on the right of the telephones.

On the right-hand side wall is shown a type A.D.14 direction finder gear which is now used on some large military aircraft.



The Marconi Aerodrome Receiving Equipment.

Plywood for Aeroplanes.

Plywood plays a very important part in the construction of aircraft. There are not many machines in which plywood is not used in some capacity. "Mallite," manufactured by The Aeronautical and Panel Plywood Co., Ltd., of 218/225, Kingsland Road, London, E.2, is claimed to be one of the finest plywoods for Aeronautical construction in the world. This firm has been making plywood for aircraft for a number of years, and have spent considerable sums of money in experimenting to make "Mallite" perfect and that their efforts have been very highly successful is borne out by the fact that they are now supplying "Mallite" to all the leading aeroplane and seaplane builders of Great Britain.

The British Engineering Standards Association Specification 2 V.3 is very exacting and "Mallite" is manufactured in accordance therewith. It can be obtained from the manufacturers in any size and in any thickness from 0.8 m/m. upwards. This very thin material is in weight only $1\frac{1}{2}$ ozs. per square foot. The thicknesses which are greatly in demand for fuselage work are $1/8$ in., $3/16$ in., and $1/4$ in. 1 in. and $1\frac{1}{2}$ in. is found to be best for engine bearers.

"Mallite" will not come apart in hot or damp climates and is therefore very useful for those countries round about the Equator, neither will it in the coldest of climates for tests have been taken and have proved very satisfactory.



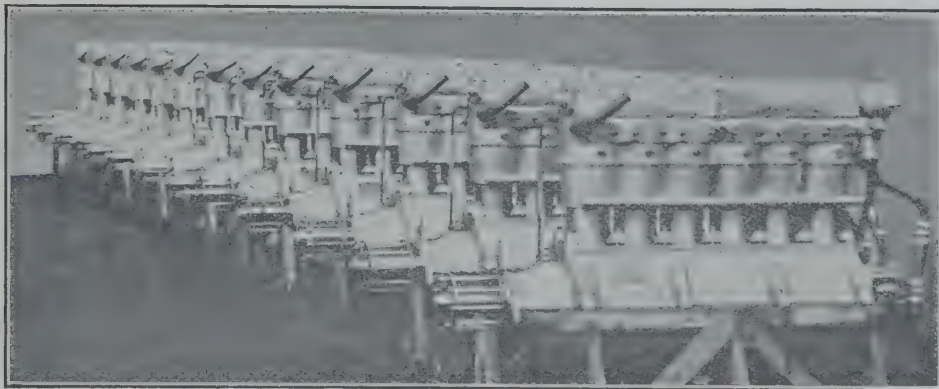
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The PUMA engine is being used with great success by the following Air Transport Companies.

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The Royal Swedish Mail Air Line (commencing 21st June).

The K.L.M. (Holland).

The De Havilland Aircraft Hire Service.

The Liverpool to Belfast Royal Mail Air Line.

The Seville-Larache Air Line (Spain).

In addition several British and Continental Aircraft Constructors are designing machines of new types to be fitted with 240 h.p. Siddeley Puma Engines.

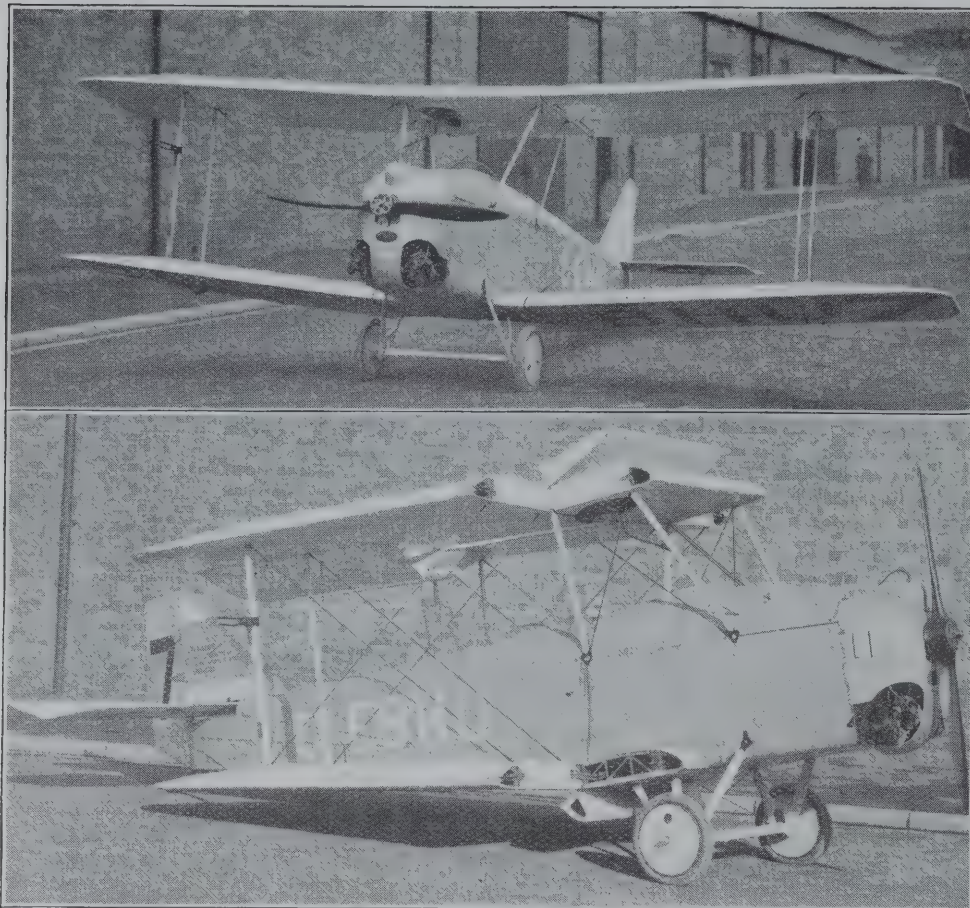
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A McCook Field Armoured Fighter.

The *Air Service News Letter* of May 31 states that on April 22 the Engineering Division, McCook Field, handed over a P.G.1 aeroplane to the Third Attack Group for a performance test. This machine is a single-seater armoured (infantry) attack aeroplane fitted with a Packard 1237 engine. Its speed is approximately 116 m.p.h. and its service ceiling 5,000 ft. And it has a landing speed of about 58 m.p.h.

There is no intention of putting this machine into production but the Engineering Division considered that much valuable comment and criticism would be received from the Group. Practically every pilot in the Group and several pilots of the 10th School Group have already flown the machine and there has been no complaint against its flying qualities.

Height.

According to the *Air Service News Letter* which is published by the U.S. Air Service, Lieut. Harold R. Harris stationed at McCook Field, Dayton, Ohio, broke the World's Altitude record for weight carrying on May 21. Lieut. Harris was flying a two-seater pursuit aeroplane with a Liberty engine. Carrying a load of 500 kilogrammes he reached an altitude of 27,470 ft. At the peak of the climb he encountered a temperature of minus 38 degrees Centigrade. The greatest height previously flown with this load was at Buenos Aires on Jan 24 last, when Otto Ballod reached 21,276 ft. in a Fokker C.4.

An Aircraft Association.

An organisation to be known as "The Commercial Aircraft Association of Akron," was formed at Akron, Ohio, on May 23, and consists of pilots, owners and manufacturers of aircraft and promoters of aviation. The aim of the society is to promote the financial welfare of individuals interested in commercial aeronautics. Thirty members have already been enrolled.

A Parachute Escape.

A *Reuter* message from Dayton, Ohio, dated June 19, states:—

Lieut. John A. MacReady, a former holder of the world's altitude "record," had a narrow escape from death while flying at Dayton, Ohio, on Wednesday night. His aeroplane burst into flames at a height of 1,500 ft., and he descended safely to earth by means of a parachute.

From another account one judges that when the kindly aborigines gathered round the wreck to view the corpses Mr. MacReady disappointed them by arriving on foot as a mere spectator instead of occupying the leading rôle in the tragedy.

THE GLOUCESTERSHIRE GANNET—This little machine, which attracted so much favourable comment on its neat and compact design and excellent workmanship when it appeared at Lympne last October has now been fitted with a 698 c.c. Blackburne engine in place of the experimental two-cylinder two-stroke engine which was originally fitted.

It will be noted that the engine is fitted in the upside down position which seems to have been generally adopted for this type of engine and that a singularly neat cowling arrangement is provided.

Fitted with a satisfactory power plant the Gannet may be expected to perform extremely well.

Good Measure.

"Above all things be accurate." This notice written in large letters that he (or she) who runs (or walks) may read is hung on the walls of one of the big instrument-making shops of S. Smith and Sons (M.A.), Ltd. at their works at Cricklewood and undoubtedly this advice to the works is the keynote of the success of this famous firm.

One was recently afforded an inspection of the works escorted by Mr. J. H. James who now looks after the interests of the Aviation Department. The accuracy with which these Smith instruments are made, assembled and tested is wonderful to see. Much of the work is of the type known as finicky and only fit for feminine fingers, mere males mostly make the more solid portions.

An example of the accuracy that the Air Ministry requires is the tachometer, more usually called the "rev. counter." Each one of these instruments has to be accurate to 10 revolutions a minute. More than this would not be expected even of Mexico or a Central American republic.

Smiths are well up to date as regards air speed indicators a specimen of which has been tested by pressure up to a speed of 400 m.p.h.

One of the most fascinating machines is that which produces the outer flexible tubing for speedometer leads by the mile, so to speak.

After a visit to the works one realises why it is that Smith's instruments are used in such large quantities everywhere and are selected for use on all epoch-making flights.

A Seaplane Record.

A *Reuter* telegram from Paris dated June 14 states:—

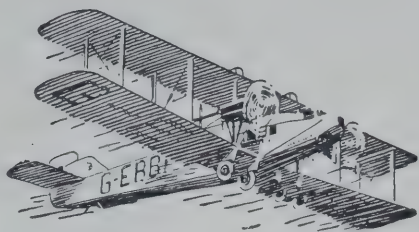
Adjutant Burri has beaten the world's height record for seaplanes, with 1,000 kilogrammes of cargo, reaching a height of 4,000 metres in 1 hr. 5 min. Adjutant Burri adds this record to those established by him earlier in the week for world's height records for seaplanes carrying 250 kilogrammes and 500 kilogrammes of cargo.

A Job for a Good Man.

A well-known aeroplane firm wants a good stress calculator who also possesses adequate knowledge of aerodynamics. Quite a good salary is offered to an experienced man. Applicants are invited to write to the Editor of *THE AEROPLANE* in confidence.

Mortgages and Charges.

SUPERMARINE AVIATION WORKS, LTD.—Debenture dated May 28, 1924, to secure £25,000, charged on the company's undertaking and property, present and future, including uncalled capital. Holders:—Branch Nominees, Ltd., 15, Bishopsgate, E.C.2.



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During the year ending September 30th, 1923, the Handley-Page Air Service carried 7,401 passengers (or 74.12% of the total number carried by air) between London and Paris, and throughout the year conformed to Schedule to the extraordinary extent of 98.5%.

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COMMERCIAL AERONAUTICS. The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 28; Tuesday, 27; Wednesday, 18; Thursday, 20; Friday, 32; Saturday, 24; Sunday, 11.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Amsterdam—Berlin: Machines 98, passengers 381, freight —.

AIR UNION:

Paris—London: Machines 41, passengers 191, freight —.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 14; passengers 48.

AERO-LOYD:

Berlin—London: Machines 3, passengers 8.

SPECIALS:

SURREY FLYING SERVICES:

Machines 1, passengers 1.

PRIVATE:

Machines 3, passengers 4.

Total number of trips, by British machines 99, carrying 381 passengers. Foreign machines 60, carrying 251 passengers.

Comparative Figures:

For week ending July 6:

Machines, 160; Passengers, 633; Crews, 197; Total personnel, 830.

Corresponding week, 1923:

Machines, 120; Passengers, 571; Crews, 195; Total personnel, 766.

Corresponding week, 1922:

Machines, 104; Passengers, 296; Crews, 156; Total personnel, 452.

Corresponding week, 1921:

Machines, 102; Passengers, 331; Crews, 127; Total personnel, 458.

Corresponding week, 1920:

Machines, 90; Passengers, 138; Crews, 110; Total personnel, 248.

Croydon Notes.

[In the absence on leave of the usual Croydon Noter the following information has been received without prejudice from an onlooker who, proverbially, sees most of the game.—ED.]

Called upon abruptly to do our endeavours in the matter of the Croydon notes which are normally (or abnormally) slung together with such exquisite wordcraft by our Mr. G. D., we were hustled hurriedly away in the direction of the London Terminal Aerodrome on Saturday by a relentless Editor who met our objection that we knew absolutely slam-all about this aerodrome business with the Editorial maxim that knowing and writing about any given subject were totally different things. As the afore-said maxim is painted on a slab of 1 inch deal to hang above the Editorial desk we had little or no option but to obey when we saw the Editor reach for it, and we must therefore beg to be excused if such faint rumours of aerial activity as have reached us fail to placate a public rendered hypersensitive by G.D.'s undoubted talent for making up an extremely entertaining extravaganza from fragments of conversation overheard in the Aero Club or from listening for machines upon his little crystal set.

The first little history we came upon was that of a passenger who suddenly found himself landing at Croydon Aerodrome in a machine which had taken off from there about an hour previously, what time he believed himself to be winging it at incredible speed towards another European capital, and who was heard to murmur on landing that at last he fully comprehended the significance of the legend "By Air to Anywhere."

Last week saw every machine on every air-line working overtime laden to the Plimsoll line. Machines were arriving in droves as late as 10.0 p.m. by the lights of the new red coloured beacon which towers above the aerodrome, bathing the whole place with floods of red light to the intense annoyance of the little owls and the local lovers.

During the week-end several theatrical parties, of which one was led we believe by Miss Elsie Janis and another by Miss Gladys Cooper, shaking the dust of London from their feet after their last Saturday evening's show, departed to Paris by an early Sunday morning machine and, having had a good look at Notre Dame and the Arc de Triomphe, returned again on Monday in time for their first show in London on that day.

Capt. Greig has secured a special machine from Imperial Airways for Monday to transport a covey of tennis and other athletic notabilities to Paris for the Olympic games. We hear that Mr. and Mrs. Vincent Richards are amongst this party.

We trust no confusion will arise from all this, for we should not like to see Capt. Greig and party produced for a matinée in London what time Miss Gladys Cooper and Miss Elsie Janis were being urged to compete for the high and long jump respectively by an excitable official of the Olympic Games in Paris.

The arrival of certain priceless Axminsters and a bevy of Berkeley super-wadded armchairs announced to the knowledgeable that the Grand Head-Quarters Staff of Imperial Airways Ltd. would shortly take up their quarters upon the Aerodrome. This is now an accomplished fact, and D.H.34s and Handley Pages are seen positively to tremble with zeal

as their engines are run up on the tarmac before the very eye (if we may be allowed the expression) of the Big Noise itself.

Everybody at the aerodrome will be extremely sorry to learn that Mr. Hofstra, one of the pioneer Dutch pilots of the K.L.M., has been permanently stopped flying by the Medical Authorities on account of ill health. It is believed that Mr. Hofstra has accepted a ground job with the firm he has served so well as a pilot.

Rodeo, of course, could not keep away from the aerodrome and the 'drome was suddenly aroused from its drowsy contemplation of the incoming Paris passengers the other day by the spectacle of a wonderful line in bronchial busters complete with wide white sombrero, high heels, jig-saw spurs and steer-roping gadgets. Offers to throw a D.H.34 with its engine running in 30 seconds or to lassoe any propeller tip of a Farman Goliath which happened to be running up on the tarmac at the time were, we are told, but coldly received.

The new F. VII Fokker eight-seater monoplane with Rolls-Royce Eagle IX engine came through from Holland one day last week and the machine has a very creditable appearance, being without a doubt one of the most comfortable passenger machines in existence. The pilot Mr. Van der Hoop, who is taking this F. VII for a flip to the Dutch Indies next October, speaks very highly of her performance; she takes off exceedingly well with a full load, lands very slowly and is, so the pilot says, a splendid 'bus to fly. She is of course fitted with wireless and has a really roomy cockpit for two pilots. She is slow, but not slower than a Handley Page W.8. Her wing span is about 21 metres.

Discipline is being rigorously maintained and efficiency increased in certain quarters. Smoking has been suppressed in the offices of a certain well-known Air Line. Doubtless this is a step in the right direction and we look forward with confidence to the time when mutton-chop whiskers and tall hats will be made compulsory on the aerodrome so that a befitting dignity may be maintained in what is after all quite as serious a business as say the Stock Exchange or Funeral Furnishing. Eight day clocks and running shorts will probably be issued to traffic managers who work in spells of about that number of days and of course run all the time.

We were puzzled to death on Saturday morning to hear of an urgent warning from the Air Ministry to all Civil firms to the effect that a submarine would be tethered in the middle of Kenley Aerodrome on the following Monday. At first we thought this to be a nautical jest on the part of the Commodore, but as he was quite serious about it on inquiry and indignantly repelled our suggestion that an error might have occurred and that perhaps an aeroplane would be placed in the Channel on Monday, we gave the matter up altogether and hereby offered to buy it (not the submarine).

At Croydon we met Lieut. Van Zandt of the Air Service Engineering Division United States Army, who is studying the problems of Commercial Aviation in this country and who was good enough to treat us quite seriously. He is a World-beater in the way of asking questions one cannot answer, and he carries a 15-shooter camera and an enormous notebook with him to intimidate anyone who looks like getting fresh. Ourselves and another eminent gentleman had our photographs taken fifteen times as the two handsomest men on the aerodrome and we have secured the American rights of these, which we believe will completely oust Felix the Cat.

Talking of which, Mr. Charles Dickson, well-known for his water-colour sketches of commercial machines has made an excellent series of caricatures of various pilots and other notabilities about the place. Seeing them as Mr. Dickson sees them we understand what draws the crowds up here on Sundays to Capt. Muir's exceeding great content.

Quite a lot of really important things have probably happened here during the past week which we have missed and therefore, although the compliment will doubtless not be returned we will close down with the words, "Mr. Editor and gentlemen, we thank you."

THE GLOBE TROTTERS.

THE BRITISH EXPEDITION.

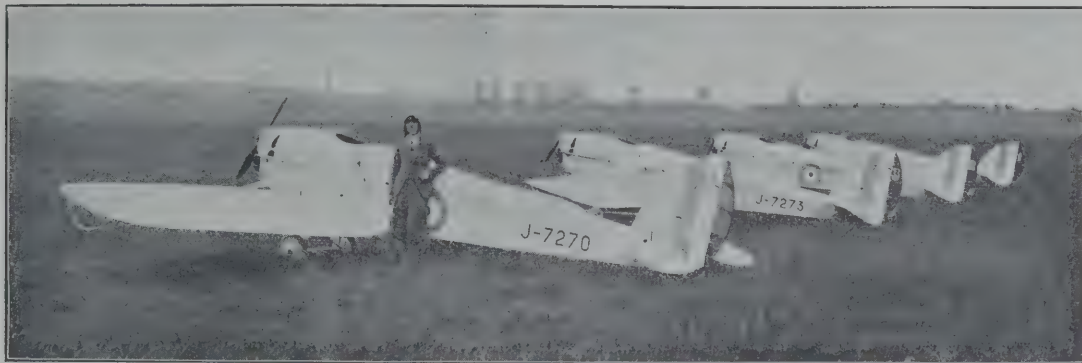
On July 2 the British Expedition left Hong Kong at 09.30 hours and arrived the same day at the Pagoda Anchorage at Foochow. At Hong Kong Sq. Ldr. MacLaren was entertained at the Hong Kong Club and at Government House.

They left Foochow at 07.00 hours the next morning and reached Shanghai at 11.20 following the coast line to Hangchow Bay and then across country.

Sgt. Andrews had an attack of heat stroke at Hong Kong while working on the machine and was taken to hospital on arrival at Shanghai. By the morning of July 4 he had recovered.

On landing at Foochow Sq. Ldr. MacLaren found that the propeller blades had been rather badly chipped but the

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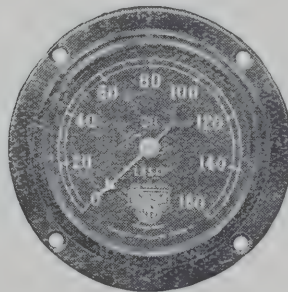
Full particulars from—

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Phone: Dalston 1833.

Instrument Chats

(No. 28.)



In days gone by it was generally supposed that a Pressure Gauge must be built with at least 6 in. or 8 in. dials. The dial of the Smith Gauge is only 2½ in. including fixed ring, yet it reads any pressure from 5 to 160 lbs. per square inch and overload. Full details of all models sent free on request.

*Have you seen the other
announcements of this series?*

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HEAD OFFICES & FACTORIES:
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LONDON SHOWROOMS
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damage was soon repaired. It is alleged that "the Chinese authorities were most helpful."

On July 3 Sq. Ldr. MacLaren and Mr. Plenderleith attended the Independence Day Dance at the American Country Club at the special invitation of the American community and the following night they dined with former members of the R.A.F. at the Shanghai Club.

British Expedition arrived at Kagoshima at 17.00 hours on July 5.

The Times correspondent at Tokyo on July 6 reports:—

Sq. Ldr. MacLaren came down short of petrol some miles before reaching Kushimoto. A Japanese naval seaplane has flown to his assistance.

An Asahi telegram from Osaka, dated July 6, says:—

"Sq. Ldr. MacLaren left Kagoshima at 7.50 this morning. He came down at Susami owing to lack of petrol. At 1.50 this afternoon the Asahi sent an aeroplane to Susami with the necessary petrol."

Tokyo, July 6.—Sq. Ldr. MacLaren resumed his flight from Susami, and arrived at Kushimoto at 5.8 this evening.

The expedition arrived at Kushimoto at 17.05 hours on July 6 after a three-hours' delay at Susami owing to lack of petrol. They left Kushimoto on July 7 for Tokyo.

At 14.50 hours on July 7 they arrived at Kasumigaura naval air station.

They have now flown 10,770 miles since leaving Calshot on Mar. 25. There are still 12,500 miles to cover to complete the journey.

THE AMERICAN EXPEDITION.

The United States Army pilots arrived at Allahabad from Calcutta at 12.20 hours on July 1. The following day they flew the 450 miles to Ambala where one machine reported trouble from a leaky cylinder. A new cylinder is being brought by air from Lahore. At Ambala they were entertained by No. 31 (Army Co-operation) Squadron, R.A.F.

On July 3 having replaced the faulty cylinder they left for Multan arriving there at 14.00 hours.

At 06.00 hours the following day they started for Karachi where they duly arrived.

Since their arrival on the night of July 4 the members of the expedition have worked with great vigour, assisted by numerous volunteers from the R.A.F. in overhauling and in installing a new engine in each machine. On examination machine No. H.2 was found to have two ribs broken, three ribs were broken in machine No. H.3, and the elevator was broken in No. H.4.

The U.S. Army pilots left Karachi at 6.30 o'clock on July 7. Officers and men of the R.A.F. together with many leading citizens bade farewell to the expedition.

According to Reuter the U.S. Army Expedition arrived at Chahbar on the Arabian Sea on July 7.

Major Martin will take command of the expedition when it reaches Paris.

The Round-Australia Flight.

Referring to the round-Australia flight on a Fairey III D seaplane of which he was the pilot, Flt. Lt. I. E. McIntyre, A.F.C., R.A.A.F., in an interview with Mr. E. J. Hart, the Editor of *Aircraft* (Australia), said that the performance of the machine was absolutely excellent throughout and surpassed anything that he had expected. Although the Fairey encountered heavy rains and then went suddenly into the tropics the wood, spars and general rigging stood up to it perfectly. Except to change the floats Flt. Lt. McIntyre says that they did nothing to the machine whatever in spite of the considerable strain imposed upon it.

When they left Thursday Island on the most difficult part of the whole trip they carried 150 lbs. in excess of their scheduled load. Between Elcho Island and Darwin they

reached a height of nearly 8,000 feet at ordinary climbing angle and with cruising-speed engine.

During the flight round Australia at least 80 inches of rain fell on the machine and it was never under cover at any stage of the tour.

A telegram from Melbourne on July 3 states:—

The Government has decided to make a grant of £500 to Wing-Commander Goble and £250 to Flt. Off. MacIntyre in recognition of their work in the flight round Australia. These grants will be presented to the officers at a special public function.

Amsterdam and Back.

Mr. Alan S. Butler, Chairman of the De Havilland Aircraft Co. Ltd., left Croydon on June 29 on his D.H.37 (Sylvia) and arrived in Amsterdam two hours later. The return journey on July 1 took only two and a-half hours. Evidently Sylvia is faster than her big sisters the regular air-liners.

PERSONAL NOTICES.

DEATHS.

SMITH.—At Felixstowe, on June 25, as the result of a flying accident, Edward Ewart Paull Smith, Flt. Off., Marine Aircraft Experimental Establishment, R.A.F., Felixstowe.

MARRIAGES.

GARNONS-WILLIAMS-McINTYRE.—On June 25, at St. Mary's Church, Broughty Ferry, by the Right Rev. the Lord Bishop of Swansea and Brecon, Miles Herbert Garnons-Williams, R.A.F., son of Mr. and Mrs. G. Garnons-Williams, of Aberclydach, Breconshire, to Norah Katharine, only daughter of the late Daniel McIntyre, Dundee, and of Mrs. McIntyre, Nethercrag, Broughty Ferry.

GODDARD-INGLIS.—On July 5, at St. George's, Bickley, Flt. Lt. R. V. Goddard, R.A.F., to Mildred, daughter of the late Mr. Alfred M. Inglis and of Mrs. Inglis, of The Hollies, Bickley.

FORTHCOMING MARRIAGES.

CAHILL-WRIGHT.—The engagement is announced between Flt. Off. C. H. Cahill, No. 1 Sqdn., R.A.F., Iraq, and Kathleen, eldest daughter of Mr. and Mrs. J. S. R. Wright, Imperial Bank of Persia, Baghdad.

SLEIGH-OGLE.—The engagement is announced between Horatio Sleigh, Flt. Off., 216 Sqdn., R.A.F., son of the late Thomas Harpor Sleigh and Mrs. Sleigh, of Bury, Lancs., and Dorothy Ogle, widow of Dr. J. G. Ogle, of Mount Cottage, Redhill, and daughter of Mrs. Wm. Hunter, of Cranbrook, Kent.

BIRTHS.

COLLIER.—On June 30, to Mary, wife of Flt. Lt. A. C. Collier, R.A.F., of Brook Cottage, Shepperton—a son.

PIKE.—On June 23, at Antrim, West Wickham, to Olga, wife of Major F. E. Pike (late R.A.F.)—a daughter.

ROE.—On June 22, to Mr. and Mrs. A. V. Roe, High Firs, Bursledon, Hants—a daughter.

SHAW.—On July 5, at "Thurleigh," Onslow Gardens, Wallington, to Mr. and Mrs. H. Shaw—a son.

TRISTRAM.—On June 26, to Marjorie, wife of C. U. Tristram, Plt. Off., R.A.F., of 146, Worple Road, Wimbledon—a daughter.

WRINCH.—On Apr. 24, to Ursula Handley, wife of Hugh Wrinch (late R.F.C. and R.A.F.), of Stellenberg, Pussciawa—a son.

WYNNE-TYSON.—On July 6, at Warwick House, Brockhurst, to E-mé, wife of Flt. Lt. L. C. Wynne-Tyson—a son.

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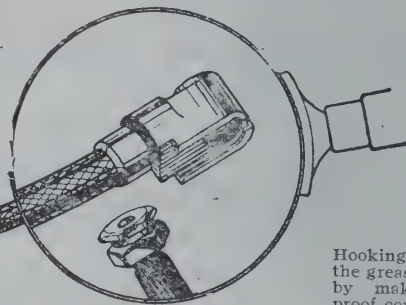
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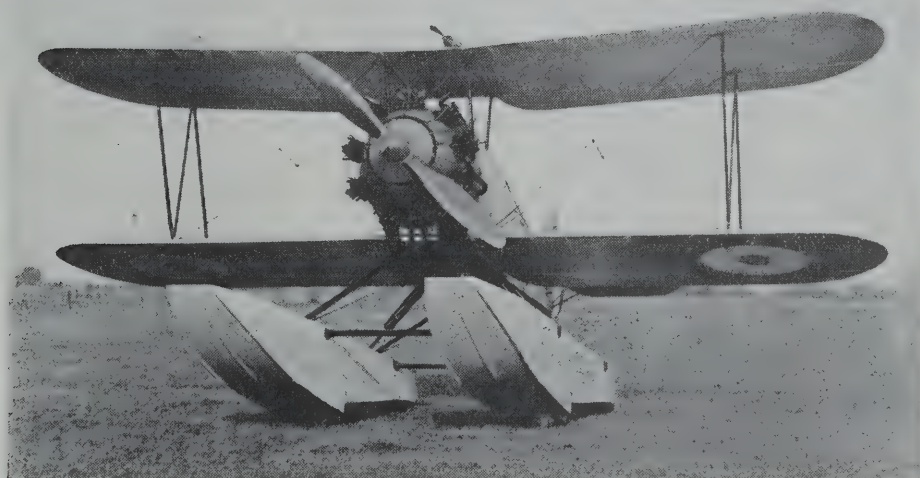
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Edited by
R. G. Grey

Vol. XXVII. No. 3.

SIXPENCE WEEKLY.

Registered at the G.P.O.
as a Newspaper.

ALL THAT WAS LEFT OF THEM.

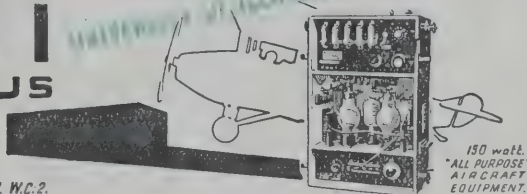


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OUR GREAT OPPORTUNITY.

The Royal Air Force Pageant ought to have taught numerous salutary lessons to a number of people, from the Military and Naval authorities of the Great Powers all the way down to the humble members of the Great British Public—who if one is to believe certain daily news-sheets and some of our Members of Parliament—live in nightly dread of being bombed or gassed in their beds by the air fleet of some foreign nation which has conceived such a sudden and intense dislike of England that it has made instant war on us without preliminary declaration.

Our foreign friends ought to have learned that, though our Service aircraft may be obsolete the quality of our aviators and of our organisation is such that a couple of full squadrons of the R.A.F. in battle formation would cheerfully undertake to plough their way through the whole strength of the biggest air force in the World if it could all be persuaded into the air at the same time: and that the superior speed of the foreign machines would be chiefly of use in enabling them to get out of the way of our people.

Our timorous Public ought to have learned that with such an air force as we possess to-day, we can assure their safety against anything in the way of aircraft that can be brought against them at the moment: and that given a free hand our aircraft constructors can produce machines which will be as superior to foreign machines as our aviators are superior to those of any other country.

But there is one lesson to be learned from the Pageant which may not be thoroughly understood by those immediately concerned. Do the British Aircraft Constructors realise that here and now is the great opportunity for the Aircraft Trade to shake itself free of the burden of official interference with design and to prove definitely that we can build aeroplanes which are not only better made than any in the World but are safer to fly and are more easily controlled and can fly faster and can climb faster and can manoeuvre more quickly and can carry bigger loads than those of any other nation?

THE TRADE'S CHANCE.

Speaking at the Independent Force Dinner just before the Pageant, Sir Hugh Trenchard, Chief of the Air Staff, laid down the principle that every officer of every rank in the Air Force has got to fly as much as possible in future. Which means that besides the young flying officer who is supposed to be able to fly anything which can be projected into the atmosphere the senior officers must also fly. Which again means that senior officers will very soon acquire a knowledge of aviation and will take an acute personal interest in the qualities and peculiarities of the machines under their command which has hitherto been somewhat lacking.

It is here that the Trade's opportunity awaits it if the members of the Trade are sufficiently acute and sufficiently enterprising to seize that opportunity.

Hitherto the aircraft-builders who compose The Trade have existed by the grace, charity, goodwill or what-not, of the Air Ministry. At some time or other since the cancellation of the big war-contracts in 1919 almost every existing aircraft builder has been on the verge of quitting the Aircraft Industry either through loss of faith in aviation or loss of money. Many firms which were once of importance went bankrupt and expired. Others, whose proprietors acquired wealth and (or) decorations by copying the designs of the pioneer firms, closed down and the owners retired with their wealth, which in a good many cases was soon lost on speculation during the false trade boom which follows every war. But the firms whose chiefs built up British aviation before 1914 have somehow survived.

There are to-day about twenty firms in Great Britain which construct aeroplanes. And though some of those firms did not exist before 1914 it will be found in every case that the man on whom the success of the firm or the firm's aircraft department ultimately depends (in the case of some of the great manufacturing concerns in which aircraft are merely a side-line) was concerned with aviation before the War 1914-18. Thus it may be seen that the Trade to-day is in fact of

pre-war origin. And so it may be assumed as proven that the people who compose that Trade do know most of what there is to know about aircraft design and construction.

THE EXPERT INCUBUS.

Yet those men with all their accumulated knowledge, have had to exist, as aforesaid, on the grace, charity, or goodwill of the Air Ministry. And in this particular manifestation the Air Ministry means that curious agglomeration of pseudo-scientists which is known collectively as The Technical Department.

Very few of these self-adjudged experts know anything about practical flying. Hardly any of them have any experience of practical engineering. Nearly all of them rely on a smattering of book-learning which enables them by the use, and frequently by the misuse, of high-sounding technical and scientific terms to bemuse the more practical people of the Supply Department in a mist of words which if it does not carry conviction does at any rate prevent argument with or refutation of the laws which they choose to make in their own interests. Most of them are in fact nothing but over-aged schoolboys, with all a schoolboy's cocksureness and lack of manners.

The practical men in the Trade have always known the capacity, or rather the incapacity, of these Air Ministry experts. But they have not been in a position to fight them. For to offend one of these experts meant that the machines built by the offender were not approved. Which meant that if the orders for such machines were not actually cancelled the acceptance of the machines by the Royal Air Force was delayed and delayed month after month by futile and fatuous objections to this detail or that till ultimately the machines became obsolete without ever doing any useful flying.

The all-pervading dominance of these experts has also meant that whenever a knowledgeable constructor has produced a promising design every little schoolboy expert has rushed from his cubby-hole at the Air Ministry to that unfortunate constructor's works and has loaded-up the machine with his own particular gadgets and gilguys and fads and fancies till what was originally a nice clean design which might have put up a good performance has become a kind of aerial Christmas tree all over knobs and bumps and excrescences till, as the humorist in the Amusement Park at the Pageant remarked of the majority of the machines there, it looks like a Russian church—or, to quote a still more cutting remark, till it looks as if its designer was the lineal descendant of the man who designed the Albert Memorial.

We shall never get out of our British aeroplanes the performances of which they are capable until these pseudo-scientific book-wallahs have been defeated. If we had an all-powerful autocrat at the head of the Air Ministry the whole lot would be dragged from their lairs and ceremoniously done to death in some humorous manner under the great arch of the Bush Building which almost faces the Air Ministry—somehow the ominous heathenish aspect of that frontal arch suggests its peculiar fitness as a place for impressive public executions. But our particular autocrat is not quite sufficiently powerful and is far too benevolent for such salutary action. Therefore the experts must be defeated otherhow.

AN AIR FORCE WHICH FLIES.

It is precisely here that the renewed flying activity of the senior officers of the Royal Air Force affords the Trade its opportunity. So long as senior officers did not fly the junior officers were compelled to fly what was issued to them. It was not that the senior officers did not care, but merely that they were ignorant. Moreover most of the senior officers had absorbed that pernicious idea that flying is a young man's game and so were content to stay on the ground and watch the younger generation kill itself quite unnecessarily.

It is true that several senior officers have flown regularly ever since the War 1914-18. And it is curious that it is the

most senior officers who have flown. All the Air Vice-Marshals fly, a few as pilots but mostly as passengers behind carefully-selected pilots. Nearly all the Air-Commodores fly, and several of them are very good pilots indeed (there was one flying in the Relay Race at the Pageant).

But there is an ugly gap when one comes to the Group Captains. Hardly any of them are pilots to-day and few of them even fly as passengers. Many Wing-Commanders are first-class pilots, but there are probably more who never go into the air at all. Quite a number of Squadron-Leaders are capable of leading their squadrons in a fight, but there are others who would resign sooner than fly. And these junior-senior officers, as one may call them, are precisely the people who are going to afford the Trade its opportunity.

The Air Vice-Marshals and Air-Commodores are so occupied with their work as commanding officers that they have no time to worry about the design and construction of the machines in which they fly. Their sense of duty sends them into the air. They rely on their workshop people for the condition of their machines. And they rely on their pilots or on their own skill as war-time aviators to get them off and onto the ground safely. Consequently they carry on with reconditioned war-time machines or accept whatever in the way of new types the Air Ministry experts like to inflict on them.

Pilot-Officers, Flying-Officers, Flight-Lieutenants and those Squadron-Leaders who fly, take what is given them and make the best of it. Few of them have much technical knowledge, most of them are highly-skilled pilots (as the Pageant showed), and they are also infected with the idea that flying is a young man's game. In fact the more dangerous a machine is supposed to be the more they delight in flying it, just to show what terrible fellows they are.—There is much of the broncho-buster in the average aeroplane-buster.

THE INFLUENCE OF THE STAID.

But—when the Air Staff insists that all these hundreds of steady-going Squadron-Leaders and Wing-Commanders and Group Captains have got to fly, and fly regularly, the whole state of affairs will have to be altered. Most of them are staid married men with families, and they will not take any chances. When war comes again they will fly with all the gallantry of the best of the young pilots and with a good deal more sense. But in time of peace they will insist as one man on having machines which are fit and safe to fly. And, with an eye to future war they will insist that the machines which they will have to fly on active service shall have the best possible performance for the power available.

Now, those are precisely the machines which the Air Ministry experts are preventing the R.A.F. from getting. And this is where the Trade has its opportunity.

AN ACTIVE POLICY.

Every one of the surviving firms in the Trade has a fair amount of orders in hand at the moment. And those orders leave a fair margin of profit—at least one hopes that they do. If the Trade is as wise as it ought to be each firm will spend some of its profit in designing and building a machine or two which shall be as good as ever it knows how to make it. And every one of those machines will be built as a private venture entirely independent of the Air Ministry and its experts.

Happily at the present stage in the development of aero-

planes there is not much difference between aeroplanes-of-war and civilian aeroplanes. A firm could be prohibited by the law—set in motion by jealous experts at the Air Ministry—from flying, offering for sale, or exporting military aeroplanes. But no expert could stop a firm from building a racing machine to which guns could be fitted to transform it into a single-seat pursuit machine. Nor could it be stopped from demonstrating a high-performance tourer in which a gun-ring could take the place of the passenger's seat. Nor could it be stopped from offering for sale a very uncomfortable long-range high-speed air-liner which might carry several tons of bombs in the room of a few super-compressed passengers.

Any firm which can produce such free and independent machines and can demonstrate that they are superior in performance to those which have been mucked about (to use an inelegant colloquialism) by Air Ministry experts is certain of getting orders in the long run—always provided that it has the pluck to stick to its policy and to defy the experts.

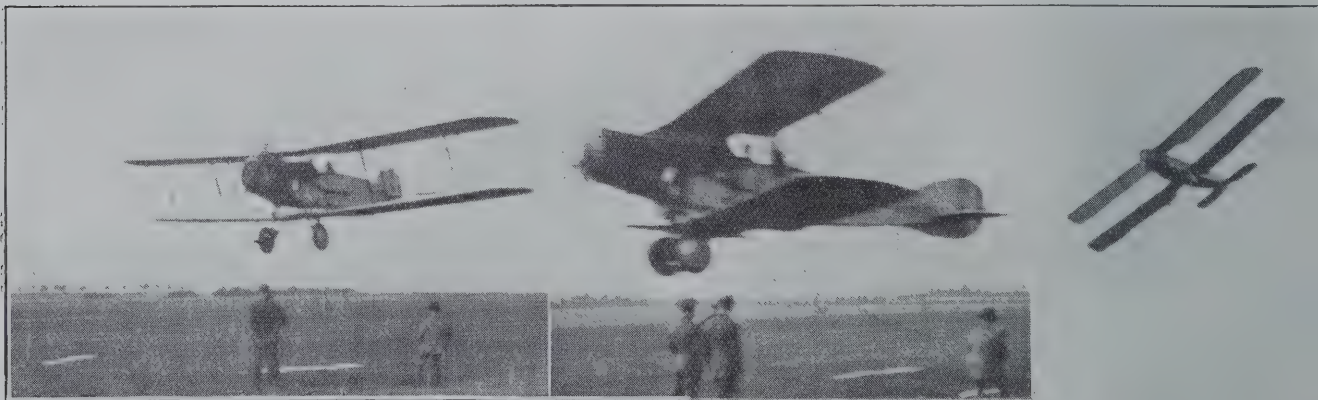
If the best two-seat fighter produced under expert interference has a speed of 140 miles an hour (which it has *not*) and if a firm produces a two-seat alleged tourer carrying the same load at 200 miles an hour (which ought to be easy), then the Air Ministry dare not refuse to buy it. For if it refused then the maker could sell the machine in quantities to a foreign nation, which would thus acquire British aeroplanes better than those owned by the R.A.F.

Of course the firm must stand to be shot at. It must be prepared to prove the strength of its structure and material against all sorts of ingenious and unfair tests and calculations. It must be prepared to fight departmental and political intrigues. And it must be prepared perhaps to see profitable production orders for obsolete types going to rivals who prefer to take Air Ministry interference lying down.

But, if all the firms composing the Society of British Aircraft Constructors agree to act together along those lines they will break the power of the Air Ministry experts within six months.

If some such policy is not adopted by the Trade, then within a year or two the Trade will find itself under the thumbs of the Government experts just as it was in 1914-15 under the thumb of the Royal Aircraft Factory. Each firm will merely exist on doles in the shape of orders to build a few machines designed by experts at the Air Ministry or at the Royal Aircraft Factory at Farnborough. The design of new and progressive machines would be stopped on pain of losing the Government orders. And so all foreign trade would be stopped, for no foreign nation would buy machines with performances so poor as those produced by our experts when machines with far better performances could be bought elsewhere at half the price.

Undoubtedly this is the moment at which the Trade must get up and fight. If it hangs together it is bound to win. If it does not, then each firm will be hanged separately by the experts. And one can promise it the support of *THE AEROPLANE* just as it had this paper's support in the fight which we won against the Royal Aircraft Factory and officialdom in 1915-16. For one's chief interest is in getting the best aeroplanes in the World for the best Air Force in the World. And the best way to get those best aeroplanes is to give the best Trade designers a free hand.

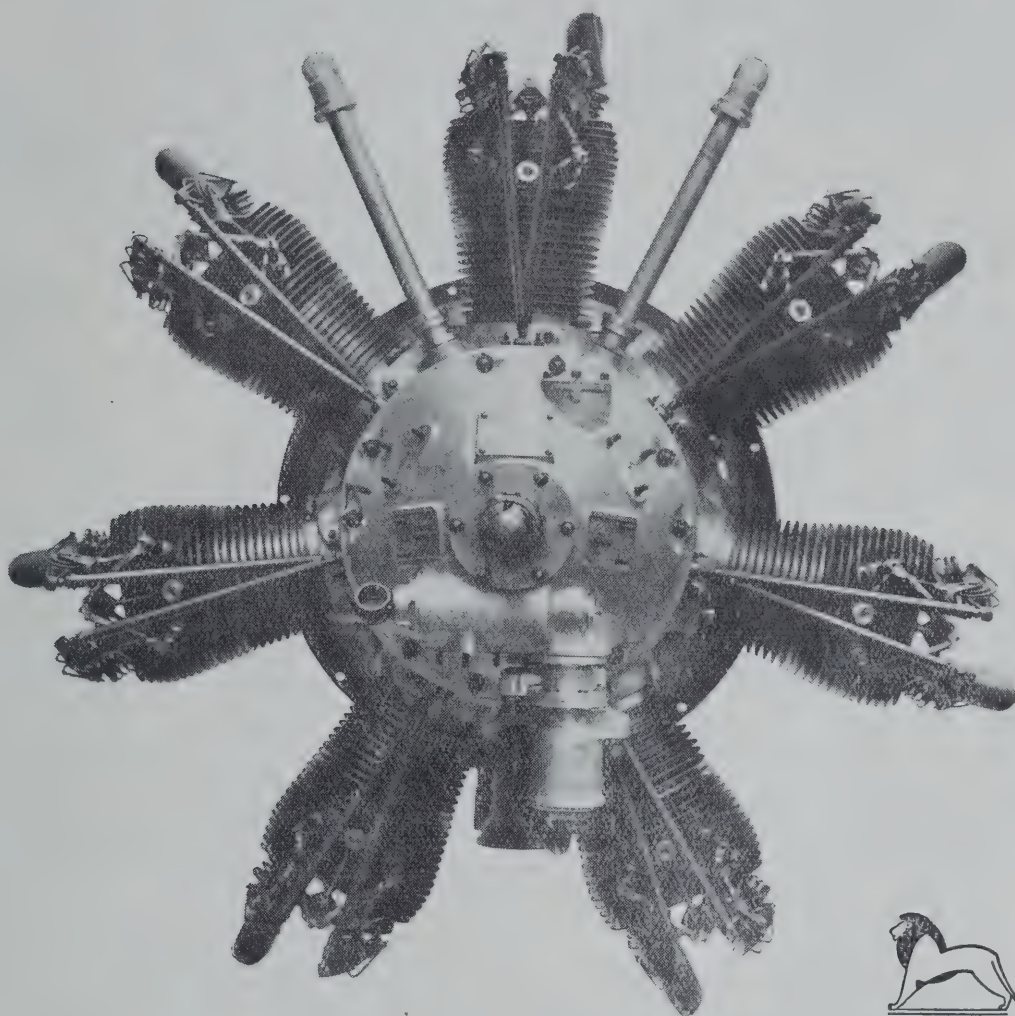


ARMY CO-OPERATION:—A Bristol Fighter (Rolls-Royce engine) giving a demonstration of picking up and dropping messages. On the left it is approaching the posts between which the message-bag is slung. In the middle the machine has picked up the bag and is just beginning to rise. On the right the machine has returned and is doing a banked turn so that the observer can drop his message in reply.



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CONTROL WITHOUT OCCUPATION.—V.

[The following is a continuation of the despatch (publication of which was begun on June 18) from Air Marshal Sir John Salmund concerning operations from Iraq to control hostile tribes in the vicinity without occupying their territory.—Ed.]

14. On the 13th May the Column had reached a point 23 miles West of the Bazian Pass.

Preparations were made in anticipation of resistance at the Pass, the intention being to attack at dawn on the 15th; and those preparations had included for the air forces co-operating, heavy bomb raids ahead of the Column, continuous contact patrol, and low flying attacks on the Bazian ridge, and a pursuit patrol on the far side of the Pass to destroy the escaping enemy.

15. On the following day, however, air reconnaissance reported no enemy West of the Pass and that an adequate supply of water existed some two miles to the West, and a forced march of 21 miles was made to the water. The Pass was found not to be held. The arrangements which had been made for air co-operation in the attack were accordingly cancelled by picked-up message and after a short rest the advanced guard made a stiff climb and picqueted the heights on both sides of the Pass and a commanding position to the East of it.

16. On the 15th, intelligence being that a party of enemy horsemen were in the neighbourhood of the Tasluja Pass, a second double march was made through the Pass, and the Column encamped only some ten miles West of Sulaimania.

17. This march of 43 miles in two days through the Bazian and Tasluja Passes effected a complete surprise. A captured letter shows that it had been intended to hold the Tasluja Pass; while a letter which was received by the Column Commander on the same evening from Shaikh Mahmoud, recommending him not to advance to Chemchemal, shows how completely the rapid advance of the Column had upset his plans.

It was found that news that the Column had left Kirkuk had only reached Sulaimania on this day. (15th May.)

18. On the evening of the 15th orders were dropped into Sulaimania by aircraft ordering the notables out to meet the Column at Sarchinar and an air message was picked up arranging for patrols of aircraft to fire at any parties attempting to escape from the town.

On the following morning, the 16th, the Column started out through drenching thunderstorms and was met, as ordered, by a large deputation of the notables of the town. Some of the notables, however, had left during the previous night and the severe and persistent downpour hampered the aircraft detailed to search the roads and turn them back.

19. The Column halted at Sulaimania one day (the 17th) to evacuate by air some 47 sick, to set up a temporary authority in the town during the absence of the Column and to collect supplies.

20. Shaikh Mahmoud had been on 14th and 15th May only a few miles to the North of the Tasluja Pass. On the collapse of his plans for resistance at the Pass he at once retired his forces to his Headquarters in the Serdash Hills.

21. With the occupation of Sulaimania one of the objectives of the operation had been secured. It now remained to break up the semi-military organisation which Shaikh Mahmoud had created in the Serdash Mirgah area, to turn out his own forces from the villages in which they were established, and to impress those Pishder and Shilhanar districts which he had chosen for his stronghold.

22. Independent air operations against Shaikh Mahmoud were continued throughout this period, and, backed up by the rapid movement of the Column, allowed him no chance to organise resistance or to check the disintegration which had at this time seriously depleted the strength of his own irregular forces.

23. On the 18th the Column marched out to Girdabor, and on the following day to Haji Awa. No resistance was experienced and it was afterwards learnt that Shaikh Mahmoud had again vanished before the approach of the Column.

On 20th the march was continued to Dukkhan on the Lesser Zab along a Valley flanked on the North by the Serdash range rising in a succession of precipitous peaks more than 3,000 feet high. Goat tracks lead up through narrow clefts in this ridge at Jasana and Qamchuga to Shaikh Bagh, a cultivated plateau hidden away amongst the peaks of the range.

24. In these villages Shaikh Mahmoud had set up his Headquarters and Supply organisation. His own position was at Jasana whence he was in telephonic communication with the river crossing at Dukkhan and with Qamchuga and Shaikh Bagh, where there were supply dumps, stores of military equipment and stocks of ammunition.

25. The Jasana Gorge is a remarkable cleft in the rock some 15 feet wide with cliffs 600 feet high on either side. A clear cold stream falls through it over the rocky bed. On the South side is a cave, the entrance to which partly built up, is skilfully concealed, and this cave had served Shaikh Mahmoud both as an ideal mountain retreat and as a Central Headquarters.

At Qamchuga considerable stores of barley were found and were brought away by the Column.

26. A post was formed at Dukkhan to guard the wagon section of the train and on May 21st the Column with pack mule transport only marched from Dukkhan over the Western end of the Serdash range to Topsawa.

From Topsawa a steep goat track leads up some 3,000 feet to the crest of the Kara Sirda Dag. Oaks and vineyards reach to the summit and afford ample cover from which a few determined men could seriously delay a large force.

27. Once the Column topped the crest of the Dag their presence was disclosed to the hostile Shilhanar villagers in the plain below and the Column Commander accordingly decided to move to Hanjirah at once and to send out two forward Columns to press on the same day to the furthest objectives.

28. It had been arranged that aircraft should leave these objectives alone and now instructions were issued to the patrol machines by picked up messages to fly forward and prevent armed inhabitants from removing their flocks before the Column could come up

29. The Air Message Section was at this time climbing the steep side of the Dag with their equipment packed on the mules. A message gear, however, was hastily improvised with short poles and the message successfully picked up from the tree covered crest of the Dag at a height of 6,000 feet.

30. In the work of turning back hostile parties with their flocks making good their escape, and thus in effect surrounding the villages, those low flying aircraft were particularly successful.

31. Koicol, less the forward column which had been directed against Mirgah and which rejoined the main body next day, encamped on the 21st May at Bingird and remained there one day. The other forward column which had been sent on to Bingird and Bardashan came under fire from the cliffs bordering the valley and two Indian other ranks were wounded. A landing ground was improvised and my Chief Staff Officer visited the Column by air from Baghdad.

One casualty was evacuated by air.

32. On the 23rd May Koicol returned to Hanjirah, a detachment being sent out to destroy the remaining Shilhanar villages near the Lesser Zab. During this march large hostile parties were seen following up the rearguard of the Column but keeping out of range of the guns. Low flying aircraft were sent for by picked up message and on their arrival the hostile parties dispersed.

33. Aircraft on 22nd and 23rd also carried out bombing attacks against the hostile Pishder tribes on the left bank of the Zab to the North-East of the Column.

34. Throughout this operation no villages were touched other than those of the Shilhanar tribes above-mentioned which had probably above all others been consistently and actively hostile to Government.

Inhabitants of other villages were allowed to return and continue their cultivation and any animals taken in error were returned.

35. On the return journey on the 25th a large amount of 75 m.m. German Gun ammunition of the same type as that captured at Banawi during the former operations was found stored in a cave at Shaikh Bagh and destroyed.

News was received on this day that Shaikh Mahmoud had fled across the Persian border.

36. The Column reached Sarchinar on 28th and encamped.

Shaikh Mahmoud, with Abbas Agha Chief of the hostile Pishder and others of his principal followers had fled the Country. His fighting organisation had been broken up and of his partly organised forces, all but a few had deserted. The hostile districts which had afforded him sanctuary and active support had been subdued.

37. Shaikh Mahmoud has since moved to and fro across the Persian border in the Avroman Mountains, and wherever he has come for a short while within reach aircraft have promptly returned to the attack.

38. The Column remained at Sulaimania for some three weeks, pending decision as to the form of administration which should be left behind. Orders were then issued for withdrawal to Kirkuk in three echelons, the last of these leaving Sulaimania on 19th June. Koicol was disbanded as from this date.

From Kirkuk the various Units of the Column are under orders to proceed by March Route and Rail to their normal locations.

39. In my former despatch I described certain instances in which aircraft had rendered some of those special services for which they are peculiarly adapted.

Opposition to the present operations, however, was negligible and thus little chance was afforded of exerting to the full the air power at my disposal or of bringing its many special uses to bear for the service of the Column. There are, however, a few instances which may be noted.

40. Thus aircraft enabled me to visit, on the day previous to that on which the Column was timed to attack the Bazian Pass each Sector of the Kurdish Front, Kirkuk, Arbil Rowanduz and Mosul, and to return to Kirkuk at dawn to be at hand when the attack on the Pass would be in progress.

41. Independent air attacks on Shaikh Mahmoud, in the initial stages of the march, beyond doubt largely deterred the tribes from rallying to his support.

Throughout the operation the closest touch was maintained by the Column with my Headquarters, and with the air forces co-operating by means of the R.A.F. W/T Mobile Pack Set and the Air Message Section which accompanied the R.A.F. Liaison Officer.

Air Message Organisation, freely used, again proved on many occasions its unique value. Several urgent messages were picked up from the Column, which, owing to atmospheric conditions, could not at that time have been sent by Wireless. On at least two instances aircraft were immediately acquainted in this way with changes in the original instructions with which they had started out on their patrol.

42. Air reconnaissances promptly furnished specific information, and reports asked for by the Column by picked up messages. Continuous patrols were arranged when the Column was traversing a difficult pass. Villages ahead of, and out of reach of, the Column known to contain hostile elements were attacked.

A delicate W/T Transmitter was successfully dropped by parachute.

43. From experience gained in the Mirgah district it is clear that aircraft may be of great service in preventing the withdrawal of mounted bands of irregulars from the villages and districts against which the Column is marching and in turning back the inhabitants removing their flocks.

44. It must always be a formidable difficulty in this type of guerilla or tribal warfare that the superior mobility of irregulars on their lightly loaded hill ponies, and of tribesmen with their flocks, over the fastest moving Column of organised troops enables them to make good their escape, even at the shortest notice, and renders complete surprise almost impossible.

45. I am of the opinion, however, that it will be found when further experience has been gained of co-operation in this type of warfare that in sending forward low flying aircraft at dawn, into the zone to be visited during the day by the Column, to close the roads of escape, much may be done to solve this difficult military problem.

46. By the evacuation of 47 sick by air out of the hostile area the need was avoided of detaching a considerable post or marching escort

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from the Column for their protection and an appreciable economy of force effected.

47. While crossing over a very difficult mountain range the Column owing to the nature of the narrow hill track was much lengthened out. Close and continuous air patrols afforded protection to the Column throughout the day.

48. I have submitted as an attachment hereto the names of certain Officers, Other Ranks and Airmen especially deserving of mention or awards for services during the total period covered by these Kurdish operations. I wish, however, particularly to bring forward the names of the following two Officers who have rendered very valuable services:

Colonel Commandant B. Vincent, C.B., C.M.G.

Group Captain J. G. Hearson, C.B., D.S.O.

Colonel Commandant Vincent commanded a Column in these operations from March to June, 1923, with conspicuous skill. The fact that Rowanduz was captured with a minimum of casualties, although the district had been in Turkish hands for the last two years, was greatly due to the determination he showed in the face of great difficulty. His resources and skill on more than one occasion has outwitted the enemy's well laid plans. In the Sulmani operations, by the rapidity of his movement, he carried two strong positions before the enemy had time to concentrate, and consequently upset his plans. Previous to these operations he commanded with conspicuous success the Field Force in the Mosul area.

Group Captain Hearson during this period from March to June, 1923, has borne the whole load of responsibility of supply for both Army and Air Force Units. The fact that there has been no occasion of breakdown in these services, although carried out in most difficult country and under trying conditions has been due to his personal zeal, ability and hard work. Previous to these operations he organised the supply and movement from Basrah and Baghdad to Mosul of the whole of the Field Force with the fullest measure of success.

49. Finally I wish to record my gratitude and my indebtedness to His Excellency the High Commissioner for the sympathetic insight and ready understanding he has all through accorded to me in the various problems with which as his Chief Military Adviser I have had to deal.

I have the honour to be, Sir, Your obedient Servant,

(Signed) J. M. Salmond (Air Marshal),
Air Officer Commanding, British Forces in Iraq.

War Office, 10th June, 1924.

His Majesty the KING has been graciously pleased to approve of the undermentioned rewards for distinguished service rendered in the Field in connection with operations in Kurdistan, 1923. To be dated June 3, 1924.

To be Brevet Lieutenant-Colonel.

Maj. H. F. Story, 1/11th Sikh R., I.A.

To be Brevet Major.

Capt. W. A. Lovat-Fraser, 4/8th Punjab R., I.A.

Awarded the Military Cross.

Subadar Bogh Singh, 1/11th Sikh R., I.A.

Jemadar Budh Singh, 2/11 Sikh R., I.A.

War Office, 10th June, 1924.

His Majesty the KING has been graciously pleased to approve of the undermentioned awards for bravery in the Field, in connection with operations in Kurdistan, 1923. To be dated 3rd June, 1924.

Awarded a Bar to Military Medal.—3234512 Sgt. McGuinness R., M.M., 2nd Bn., Cameronians (Sion Mill). (M.M. gazetted 6th Aug., 1918.)

Awarded the Military Medal.—4524522 Pte. Burton, E., 2nd Bn., W. Yorks R. (Tadcaster).

War Office, 10th June, 1924.

His Majesty the KING has been graciously pleased to approve of the award of the Meritorious Service Medal to the undermentioned non-commissioned officer and men in recognition of valuable services rendered in connection with operations in Kurdistan, 1923. To be dated 3rd June, 1924.

The West Yorkshire Regiment.—7808002 Sgt. Suter, W., 2nd Bn. (Sandaway).

The Cameronians.—3233979 Pte. Hannigan, J., 2nd Bn. (Lanark). 3234608 Pte. McGoochan, A. J., 2nd Bn. (Dundee)

Royal Army Service Corps.—S/6449014 Pte. Denny, A. H. G. (now No. 338127, R.A.F.) (Devonport).

Air Ministry, 10th June, 1924.

ROYAL AIR FORCE

His Majesty the KING has been graciously pleased to approve of the undermentioned rewards for distinguished service rendered during the operations in Kurdistan between 15th February and 19th June, 1923:—

Awarded the Distinguished Service Order.—Sq. Ldr. Edye Rollston Manning, M.C.

Awarded the Distinguished Flying Cross.—Flt. Lt. Edward Goodwin Hilton, A.F.C.; Flt. Lt. Thomas Audley Langford-Sainsbury, A.F.C.; Flg. Off. Herbert Seton Broughall, M.C.; Flg. Off. David Forgham Anderson; Flg. Off. Alan Thomas Kingston Shipwright. Flg. Off. Harry Redvers McLaren Reid.

Awarded the Distinguished Flying Medal.—313701 Cpl. (A/Sjt.) Charles John Dix; 81637 Cpl. Stanislaus Edward Wells; 326984 L-AC. Percival Maurice French; 220769 L-AC. Frank Holmes; 157539 L-AC. Frederick Peter James McGevor; 326719 AC.I. Charles Edmund Edwards.

Awarded the Meritorious Service Medal.—23 S.M.1 John Wilkinson; 755 Flt. Sgt. William Gordon Bates; 201227 Flt. Sgt. Robert Leslie Bell; 1905 Flt. Sgt. William Dixon Fotheringham; 206123 Flt. Sgt. Sidney Walter Thomas 313303 Flt. Sgt. James Robert Woollard; 14025 Sjt. Frederick Herbert Catton; 6475 Sjt. Sidney Hamblin.

Air Ministry, 10th June, 1924.

R.A.F. OFFICERS AND MEN.

The names of the undermentioned have been brought to notice for distinguished service rendered during the operations in Kurdistan, 15th February to 19th June, 1923, by Air Marshal Sir John Maitland Salmond, K.C.B., C.M.C., C.V.O., D.S.O., Commanding British Forces in Iraq, in the despatch dated 21st June, 1923.

Commands and Staff:—Bradley, Wing Commander C. R. S., O.B.E., R.A.F.; Dwyer, T/Capt. (T/Lt-Col.) E., C.B.E., M.C., Gen. List (Q.M. and Capt. in Army); Lovat-Fraser, Capt. W. A. 4/8th Punjab R., I.A.; Peck, Squadron Leader R. H., O.B.E., R.A.F.; Thomas, Squadron Leader R. W., O.B.E., R.A.F.; Vincent, Col. (T/Col. Comdt.) B., C.B., C.M.G.

Cavalry:—Mahon, T/Lt C. V., 2nd Res. Regt. attd. R.A.S.C.

Royal Artillery:—Garry, Capt. R. V. M., M.C.; MacClellan, Maj. and Bt Lt-Col. G. P., D.S.O., late R.G.A.

Royal Engineers:—Emerson, Lt. R. B.

Royal Corps of Signals:—Applegate, No. 2311016 Cpl. W. J.; Godfrey, No. 2310678 Signl. D.

2nd Battalion The West Yorkshire Regiment:—Gough, Capt. H. A., M.C.; Harrington, Capt. F. J., D.S.O.; Howard, Lt-Col. and Bt. Col. (now Col.) T. N. S. M., D.S.O.; Billing, No. 4523676 Sjt. G., M.M.; Everard, No. 4523736 C.S.M. R.; Hopps, No. 4525782 Cpl. W.

2nd Battalion The Cameronians:—Lee, Lt-Col. H. H., D.S.O.; Birnie, No. 3233489 L/Sjt. J.; Crawford, No. 3234891 Pte. W.; Robertson, No. 3233459 C. S.M., W., M.M.; Thornbury, No. 3234679 Sjt. J.

Royal Army Service Corps:—Sanders, T/Maj. R. E., D.S.O.; Gaywood, No. S/5232 A/Sjt. W. H.

Royal Army Medical Corps:—Ellington, Capt. E. H. W.; Roch, Lt-Col. H. S., C.M.G., C.B.E., D.S.O.; Black, No. 7249858 Cpl. W. M.

Royal Army Ordnance Corps:—Alexander, No. 7574566 Cpl. (A/Sjt.) G. S.; Stace, No. 7575797 Pte. (A/Sjt.) G. E. J.

Royal Army Veterinary Corps:—Kelly, Capt. A. J.

ROYAL AIR FORCE.

Anderson, Flt. Lt. W. F., D.S.O., D.F.C.; Allen, Flg. Off. M. H., D.F.C.; Bazell, Flg. Off. C. C.; Cochrane, Flt. Lt. Hon. R. A., A.F.C.; Coningham, Sq. Ldr. A., D.S.O., M.C., D.F.C.; Ferris, Flt. Lt. A.; Gibbs, Flt. Lt. G. E., M.C.; Knowler, Flg. Off. F. J.; Long, Flg. Off. F. W.; Somerset-Leeke, Flt. Lt. A. F.; Vernon, Flt. Lt. L. H.; Walker, Flg. Off. J. C.; Willock, Sq. Ldr. R. P.; Wyncoll, Flt. Lt. H. E. F., O.B.E., M.C.; Baxter, No. 327220 L-AC C. A.; Baxter, No. 340613 L-AC. R. J.; Biller, No. 343771 Cpl. J. W.; Blomfield, No. 326044 AC.2. A. J.; Locke, No. 1917 Flt. Sgt. A. J.; Machin, No. 341399 L-AC. E. A.; Mullard, No. 314933 Sjt. W. J.; Piggott, No. 331936 Cpl. C. F.; Reeve, No. 149381 L-AC. (A/Cpl.) B.; Smith, No. 1573 F/Sjt. A. E.; Stacey, No. 347281 Cpl. W. T.

INDIAN ARMY.

1/11th Sikh Regiment:—Story, Maj. H. F.

2/11th Sikh Regiment:—Barstow, Maj. A. E., M.C.; MacBrayne, Maj. R. J., M.C.

1/13th Frontier Force Rifles:—Murray, Lt-Col. K. D. R., D.S.O.

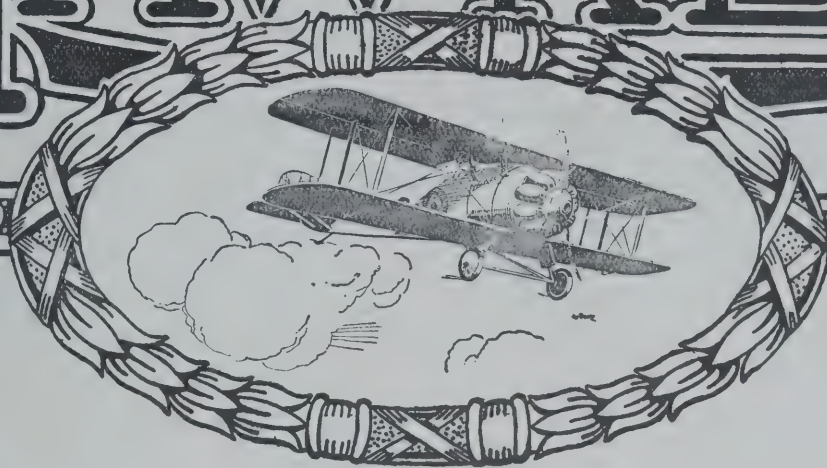
3/16th Punjab Regiment:—Dunsford, Lt-Col. E. H.

Miscellaneous:—Edmonds, C. J., Esq., Political Officer.



THE NEW WEAPON:—Fairrey Fawns (Napier Lion engine s) seen in characteristic attitudes at the At Home of the R.A.F. Staff College and No. 7 Group at Andover on July 9.

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THE ROYAL AIR FORCE.

The London Gazette.

July 8.

GENERAL DUTIES BRANCH.—The follg. are granted S.S. comms. as Pilot Officers on probation with effect from, and with seniority of, the dates indicated:—C. Clarkson, C. R. Cubitt, R. N. T. Gape, H. C. V. Jolleff, R. C. L. Limbert, W. L. McLaren, A. L. Ottway, P. E. G. Sayer, J. H. Sender, J. T. C. Skellon, C. W. M. Smith, C. V. Williams, W. Woollett (June 30).

Flg. Off. C. W. Dann, M.C., is granted hon. rank of Flt. Lt. (June 10).

Flg. Off. H. A. Anson is sec'd. whilst employed on quasi-military duty as A.D.C. to the High Commissioner for (July 1).

The follg. Plt. Offs. on probation are confirmed in rank (June 16):—A. E. Paish, R. E. Slacke, H. C. M. Shaw, J. A. P. A. Yearsley.

Group Capt. the Hon. J. D. Boyle, C.B.E., D.S.O., is placed on half-pay, Scale A. (June 7); the S.S. comn. of Plt. Off. on probation L. V. H. G. Clarke is terminated on cessation of duty (June 25).

STORES BRANCH.—Capt. and Asst. Paymr. G. H. White, R.A.P.C., is granted a temp. comn. as a Flt. Lt. for accountant duties with seny. of Apr. 1, 1918, on seconding for three years' duty with the R.A.F., and to be acting Sqdn.ldr. (July 1).

MEDICAL BRANCH.—H. W. Corner, M.B., is granted a S.S. comn. as a Flg. Off., with effect from, and with seny. of June 24; Flt. Lt. T. A. G. Hudson, B.A., is transferred to Reserve, Class D.2 (July 4); Flg. Off. K. R. Smith, M.D., D.P.H., relinquishes his temp. comn. on ceasing to be employed (June 25).

RESERVE OF AIR FORCE OFFICERS.—The follg. Flg. Offs. are confirmed in rank, with effect from dates indicated:—B. A. Trechmann (May 17); H. A. Mason (May 18); K. E. Shelley (June 15); F. L. Barnard, A.F.C., R. C. Presland (June 28).

Appointments.

Week ending July 14.

GENERAL DUTIES BRANCH.—Group Captain R. Gordon, C.B., C.M.G., D.S.O., to No. 1 Group H.Q., Kidbrooke, to command, 21/7.

Squadron Leader H. S. Powell, M.C., to No. 31 Sqdn., India, 20/6.

Flight Lieutenants H. W. L. Saunders, M.C., D.F.C., M.M., to Air Ministry, 15/7; A. L. Chick, A.F.C., to Air Ministry, 19/7; F. Leathley, M.C., to Aircraft Depot, Egypt, 21/6; A. L. Paxon, D.F.C., to Egyptian Group H.Q., 21/6; R. V. Goddard, to No. 2 F.T.S., Digby, 15/7; E. L. Barrington, M.C., D.F.C., to No. 2 F.T.S., Digby, 16/7.

Flying Officers C. C. Abraham, to R.A.F. Base, Leuchars, 21/7; A. E. Gliddon, D.S.M., to Boys' Wing, Cranwell, 1/8; E. H. Allott, to Inland Area Communication Flight, Northolt, 15/7; E. A. Healy, to No. 28 Sqdn., India, 11/6; F. H. Shales and J. W. F. Merer, to Experimental Section, R.A.E., S. Farnborough, 1/8; A. Leach, M.C., R. N. Hesketh, W. J. M. Akerman and C. B. Wilson, to No. 22 Sqdn., Martlesham Heath, 1/8; G. A. R. Muschamp, to Boys' Wing, Cranwell, 17/7; W. E. Dipple, to Marine Aircraft Exper. Estab., Felixstowe, 1/8; A. K. Bamber, to No. 15 Sqdn., Martlesham Heath, 1/8.

Pilot Officers.—All the undermentioned Pilot Officers are posted on appointment to S.S. comms., 30/6: C. Clarkson, J. T. C. Skellon and C. V. Williams, to No. 58 Sqdn., Worthy Down; C. R. Cubitt, R. N. T. Gape, H. C. V. Jolleff, R. C. L. Limbert and A. L. Ottway, to No. 19 Sqdn., Duxford; R. H. Holmes, I. W. C. Mackenzie and W. F. Parkinson, to No. 3 Sqdn., Upavon; W. L. McLaren, P. E. G. Sayer, J. H. Sender, C. W. M. Smith and W. Woollett, to No. 29 Sqdn., Duxford.

MEDICAL BRANCH.—Flying Officers (Medical) A. A. Townsend, M.B., No. 111 Sqdn., Duxford; S. G. Gilmore, to R.A.F. Depot, 14/7.

STORES BRANCH.—Flying Officer (Stores) C. E. Tidy, to No. 2 Sqdn., Manston, 14/7. Pilot Officer (Accountant) B. J. I. Gordon-Inglis, to No. 1 S. of T.T. (Boys), Halton, on appointment to a S.S. comn., 25/6.

A Royal investiture.

His Majesty the King held an Investiture at Buckingham Palace on July 9 and 10. Amongst those in attendance upon His Majesty was Air Chief Marshal Sir Hugh Trenchard (Principal Air Aide-de-Camp). Group Capt. G. L. N. Newall, R.A.F., was also present.

The following officers and N.C.O. of the Royal Air Force were among those introduced into the presence of the Sovereign and invested with the insignia of the respective Divisions of the Orders into which they have been admitted.

THE MOST HONOURABLE ORDER OF THE BATH. Knight Commander, Air Vice-Marshal Philip Gaine.

Companion, Group Capt. Lyster Blandy.

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE: Commander (Military Division), Wing Cdr. William Mitchell.

Officers (Military Division), Sq. Ldr. Charles Blount, Flt. Lt. Gerald Bryer, Flt. Lt. Maurice Moore. Members: (Military Division) Obs. Off. Patrick Hayes, Flg. Off. Ernest Whittlesea, Sgt. Major Richard Gorwood.

THE DISTINGUISHED SERVICE ORDER: Companion, Flt. Lt. Philip Fullard (also received the Military Cross and Bar and the Air Force Cross).

An Air Day.

On July 8 the Inland Area R.A.F. held its first Air Day—a term which has, one believes, been invented as an analogy for what the Army calls a Field Day.

Formations of Fairey Fawns (Napier engines) representing self-defending daylight bombers were required to enter a certain area between Staines and Brooklands and stay there for a time considered adequate for the bombing of the objective before being shot down. There were thirteen Fawns in all, divided into four formations, three of three machines each and one of four machines.

On arriving within the prescribed area the Fawns were found and attacked by a number of single-seat fighters, some twenty-five or thirty in number, consisting of formations of

Snipe, Fairey Flycatchers, and Gloucestershire Nighthawks.

In addition to these modern machines the sky was cumbed with an assortment of ancient aircraft such as D.H.9as, Bristol Fighters, and even it is said a Handley Page or Vimy, which carried air-braving officers of the Air Ministry and umpires and photographers to view the affray.

In the event the umpires decided that the Fawns had all been shot down in flames before reaching their objective. But it was also decided that one of the Fawn formations had completely abolished a whole single-seater formation which had attacked from the side where their machines came under the concentrated fire of the twin guns in the after cockpit of the bombers.

Andover at Home.

The Air Officers Commanding and the Officers of the R.A.F. Staff College and of No. 7 Group, R.A.F., not to mention the Airmen, at Andover, were At Home to some thousands of their friends on July 9. From 14.15 to 16.15 hours there were athletic competitions between the units composing No. 7 Group and after a thoroughly adequate tea there were exhibitions of flying from 17.30 to 18.00 hours.

Three Snipe from the Central Flying School did most of the things which the five Snipe did at the Pageant, but did not do them quite so well because the weather was unusually bumpy.

Two Bristol Fighters (Rolls-Royce engines) from No. 13 (Army Co-operation) Squadron gave a very pretty show of message picking and dropping. One machine picked up its message and was taken up by its pilot in a climbing right-hand turn which developed into a right-hand turning dive at the end of which the observer dropped his reply on the spot from which he had received the message. The operation took about 30 seconds so one imagines that that observer must have been in his day the star turn, pupil of both the Pelman and Pitman Schools.

Three Fairey Fawns (Napier engines) of No. 12 (Bombing) Squadron gave a most impressive exhibition of formation flying and of low bombing. The machines were new to the

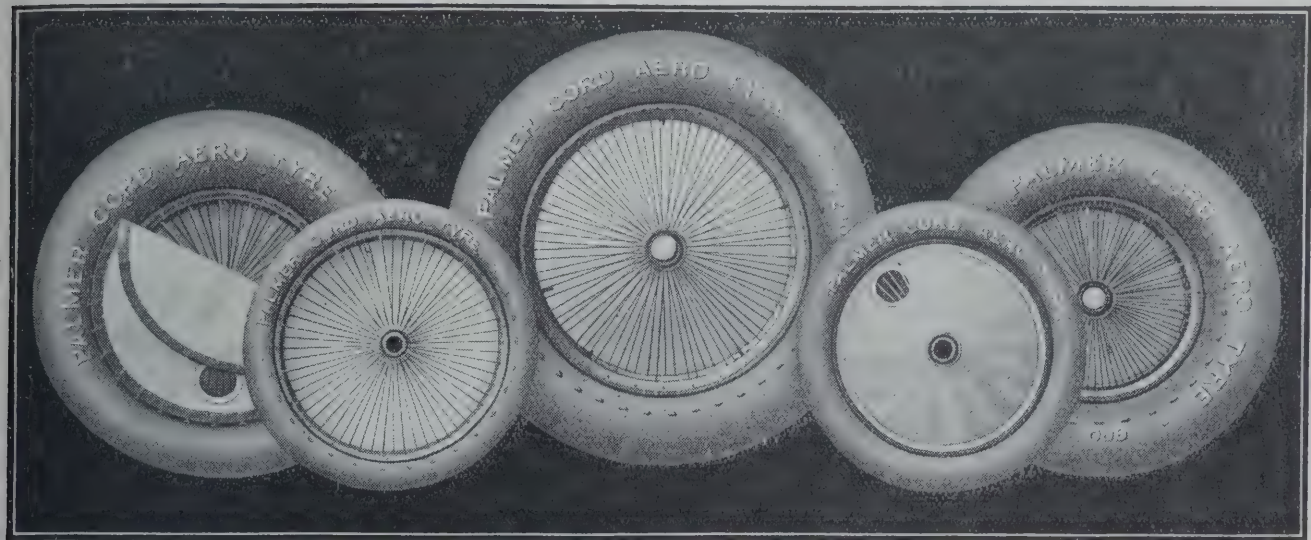


PERFECT FORMATION (or almost).—This shows 207 Squadron in "column of flights" practising at Spittlegate. It would be interesting to know whether anybody can produce a photograph of a formation which is more perfect.



PALMER

LANDING WHEELS & TYRES



STANDARD SIZES

Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore				Length	Bore				Length	Bore	
		m/m	m/m	m/m			m/m	m/m	m/m			m/m	m/m	m/m
375×55	168	111.12	25.4	Central	700×100	96	178.	55.	132/46	1000×150	201	185.	60.32	125/60
300×60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	650×125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
575×60	21	160.	28.	Central	750×125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900×230	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
600×75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	800×150	82	185.	55.	135/50	1100×220	134	220.	66.67	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	"	136	250.	80.	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	1250×250	133	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
700×100	77	178.	44.45	132/46	1000×150	131	220.	66.67	Central	1500×300	115	304.8	101.6	Central
"	92	185.	55.	135/50	"	150	185.	55.	Central	"	126	304.8	152.4	Central
"	95	185.	55.	Central	"	167	185.	55.	125/60	1750×300	139	400.	152.4	Central
					"	174	250.	80.	Central					

*Wheels Nos. 161, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres.

†Wheel No. 169 is fitted with Ball Bearings.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

pilots as the Fawn has only just become a Service type so the formation was not as close as it will become when the pilots have become accustomed to real flying machines with engines which answer their throttles and variable wings which give proper control in starting and landing. The Fawn is a very impressive machine in spite of having been disfigured by the Air Ministry's technical experts and their fads and gadgets, so the dive of these big brutes as they swooped on their target caused something of a sensation.

A pilot on a Snipe did some very neat exhibition flying and another on a D.H.53 Light Aeroplane also did some pretty work low down, although the machine's performance has obviously been spoiled by too much expert advice from the Air Ministry.

Mr. Uwins on a Bristol Taxiplane (Lucifer engine) industriously carried many passengers at 5s. per head for the benefit of the R.A.F. Memorial Fund. The machine was much admired and evidently performed well. Its only trouble was a delay for half an hour or so caused by oiling up its plugs while ticking over on the ground.

After the At Home had gone home certain privileged guests remained for a dance in the Mess. Which made a cheery finish to a thoroughly enjoyable afternoon.—C. G. G.

Well-Saved.

The Times correspondent writing from Hunstanton on July 12, states:—

While flying at a height of over 4,000 ft. above Hunstanton about 12 o'clock the other night a large twin-engine biplane burst into flames owing to the breaking of a petrol feed tube. The pilot, Flt. Lt. Perry-Keene, headed for the aerodrome, eight miles distant, while his observer, Flt. Sgt. Brett, clambered out upon one of the burning planes and attacked the flames with an extinguisher. So well directed were the sergeant's efforts, despite the heat and his precarious position, that the flames were speedily extinguished in the air, and as the pilot skilfully landed on the aerodrome the final flicked died out. Both men escaped injury, but one of the 50 h.p. (sic) engines was completely burnt out and other damage also done.

The Fleet Air Arm.

The Admiralty announce that a further course for officers desiring to qualify as naval observers in accordance with the conditions laid down last year will commence in the near future, and officers who wish to volunteer should forward their applications immediately.

The names of those on foreign stations should be telegraphed in order that the officers may be relieved, if necessary, in sufficient time to return to England and take any foreign service leave due before joining the course. Selection will be made generally from lieutenants of two years' seniority and upwards.

Admiralty Intelligence.

The Times of July 11 in its biographies of Naval Officers promoted in the Half-Yearly List states:—

The senior of the new commanders, E. T. R. Chambers, is on the staff of the Naval Air Section at the Admiralty. The promotion of this officer indicates the importance attached by the Board to the work of the Fleet Air Arm. Commander Chambers would by October have completed ten years' seniority in his old grade. The normal promotion zone is from three to 6½ years. The exception made in his case is in view of his special experience of naval air work in the war, when he became a wing-commander, R.N.A.S., in command of the naval air stations at Vendome, Chingford, and Dunkirk. From 1919 to 1922 he was Inspecting Officer of Coastguard at Hull and Salcombe.

[His many friends in the R.A.F. will welcome the return of Commander Chambers to air work. Wherever he commanded units of the Flying Services he inspired high personal regard. His resignation from the R.A.F. after the War 1914-18 was deeply regretted and his renewal of old associations will certainly make for pleasant relations between the Admiralty and the R.A.F.—C. G. G.]

Naval Co-operation.

The Morning Post of July 10 gives the following account of air operations in Weymouth Bay.

Just before midnight on July 8 the Atlantic Fleet was "attacked" in Weymouth Bay by land aeroplanes. Flying over from their station at Chickerell, the chief objective of the aeroplanes was the group of nine battleships, with the flagship *Queen Elizabeth* and the *Princess Margaret*, the biggest minelayer in the world.

The attack lasted for an hour, and the play of searchlights and dropping of Verrey lights right over the Fleet made a thrilling sight for the thousands of spectators. The ships claim that the attacking planes were always well covered by their anti-aircraft guns.

[Which may be true. But covering and hitting by Naval gunners are not precisely synonymous.—C. G. G.]

The R.M. Groves Memorial Essay.

The awards in the 1924 competition for the R.M. Groves Memorial Prizes, which are open to all members of the R.A.F., for an essay on "Forecast of Aerial Development," are as follows:—1st prize, Sq. Ldr. Sir Norman Leslie, Bart., C.B.E. Special Prize, Flt. Lt. A. S. G. Lee, School of Technical Training, Manston.

The Memorial Essay prizes were established by the family of the late Air Commodore R. M. Groves, C.B.E., D.S.O.

An Aero Club Banquet to the U.S. Army Round-the-World Aviators.

The American aviators should have reached England by now and will only remain in this country a few days. The Royal Aero Club will entertain them to a banquet but it is impossible to give a definite date for this function until the aviators have actually arrived. The date when fixed will be announced in the Press and Members wishing to attend are requested to apply direct to the Royal Aero Club.

PERSONAL NOTICES.

FORTHCOMING MARRIAGES.

BENNETT-BAGGS—ROWLEY.—The engagement is announced between Capt. James L. N. Bennett-Baggs, late The Welch Regt. and R.A.F., youngest son of Mr. and Mrs. T. H. Bennett-Baggs, of Sparkbrook, Birmingham, and Peggy Rowley, only daughter of Mr. and Mrs. W. T. Rowley, of Harston Manor, Cambs.

FRY—CARRINGTON.—The engagement is announced between Flt. Lt. William Mayes Fry, M.C., Royal Air Force, and Katherine Mary, elder daughter of the late Major General Sir Frederick Carrington, K.C.B. K.C.M.B., and the late Mrs. Treplin.

BIRTHS.

MACLAREN.—On June 22, at 1457, 33rd Avenue West, Vancouver B.C., to the wife of Sq. Ldr. Donald R. MacLaren, D.S.O., M.C., D.F.C.—a son.

IN MEMORIAM.

MCCUDDEN.—In constant memory of James Thomas Byford McCudden, V.C., D.S.O., M.C., M.M., Croix de Guerre, R.F.C. and R.A.F., killed on duty July 9, 1918, aged 23 years.—R.I.P.

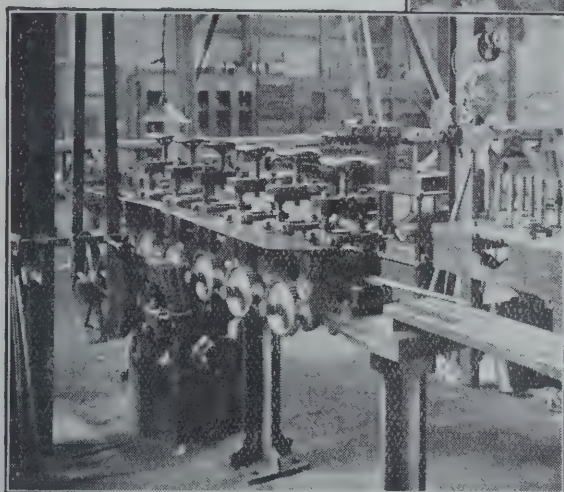
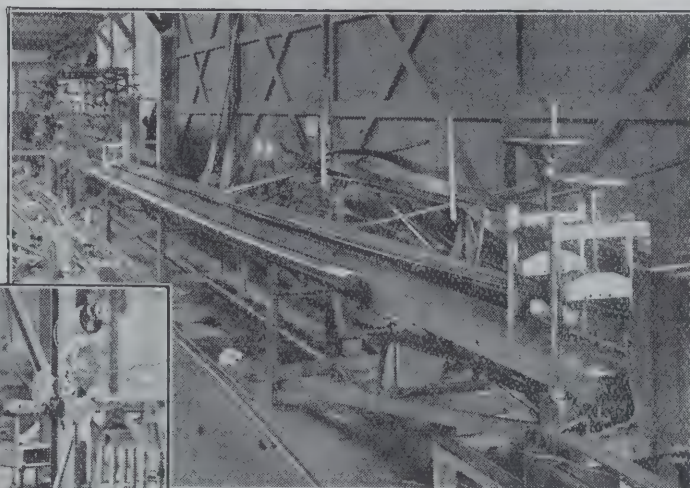


ROUND AUSTRALIA.—Here are seen the two heroes of the great flight round Australia on a Fairey IID seaplane with a Rolls-Royce Eagle VIII engine modified and modernised. On the right is Wing Commander S. J. Goble, C.B.E., D.S.O., D.F.C., Royal Australian Air Force, and on the left is Flt. Off. Ivor E. McIntyre, C.B.E. A.F.C., Royal Australian Air Force. His Majesty the King has been graciously pleased to make each of these officers a Companion of the Order of the British Empire. In recognition of their distinguished service Wing Commander Goble has received a grant of £500 from the Australian Government and Mr. McIntyre a grant of £250.

1919

1924

Production of
**ALL METAL
AIRCRAFT**



THE application of steel construction to aircraft introduced new problems attendant on the production of light gauge structural members.

THE Illustrations show two machines which, among others, have been evolved at the works of Boulton & Paul especially to meet the requirements of this class of work.

These machines are the result of five years' experience in the actual manufacture of light metal aircraft.

THIS advertisement is the fourth of an interesting series of announcements dealing with the design and construction of Boulton & Paul Aeroplanes, to appear at regular intervals in this journal.

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THE BRISTOL BLOODHOUND.

Photographs here reproduced show the Bristol "Bloodhound," a new two-seat reconnaissance and fighting machine which it has recently become permissible to illustrate.

The Bloodhound is of entirely metal construction with the exception of the fabric covering. It may be remembered that the Bristol firm produced during the war the first successful all-metal aeroplane built in Britain, and one may assume that all-metal construction will not infrequently be employed in Bristol aircraft.

The Bloodhound is a biplane with approximately equal wings, arranged with a considerable stagger, a dihedral to the lower wing only—and what is unusual in this country—a considerable sweep-back of the wings. As is obvious in the photographs the wing arrangement, together with the disposition of the pilot's seat allows the pilot an unusually expansive view—a most important feature in a machine of this class.

The Bloodhound is fitted with the Bristol Jupiter engine of 400 h.p. and is provided with tanks for 105 gallons of petrol and 15 gallons of oil—about four hours' full power consumption.

Complete dual control is fitted, and in order to secure the maximum controllability combined with the minimum fatigue to the pilot all control surfaces are balanced—the ailerons by the inset hinge method.

The machine is equipped with twin Vickers guns fitted with C.C. synchronising gear firing forward and with the standard Scarff ring mounting in the rear seat. Space for stowage of 1,600 rounds of ammunition for the Vickers gun and for seven double trays for the Lewis gun is provided.

In addition the machine is fitted with bomb gears, generator and batteries for electric lighting and heating, and with oxygen apparatus.

The undercarriage which is of unusually wide track is fitted with combined steel spring and oleo shock-absorbing gear. As can be seen the axles are brought up to the centre of the fuselage—an arrangement which gives increased ground clearance and makes for greater safety of landing on rough ground and in standing crops.

The main legs of the undercarriage are supported from the lower wing below, a pair of interplane struts set very close in to the fuselage, and the machine has an especially wide centre section supported by these interplane struts as well as by the usual centre section struts at the top.

Despite the peaceful civil markings borne by the machine illustrated the Bloodhound is still on the Air Ministry "Darkness and Composure" list and therefore detailed specifications and particulars of performance cannot be given. It is however understood that the machine is pleasant to handle and has an excellent all round performance.



Three Views of the Bristol Bloodhound
two-seat fighter and reconnaissance
machine (400 h.p. Bristol Jupiter).



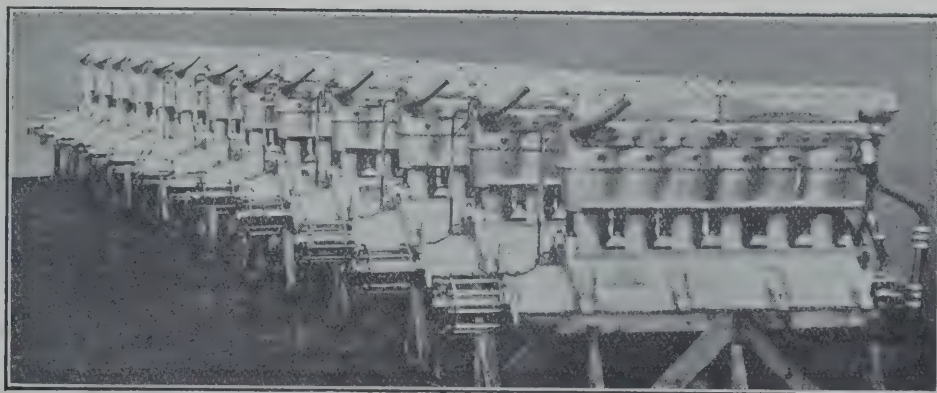
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One of the most simple, economical, and reliable aero engines of the present day is the 240 h.p. Siddeley PUMA.

We have very large stocks of new PUMA engines in addition to a great quantity of spares and we have supplied a large number of these engines to many Foreign Governments, Air Transport Companies and Aircraft Constructors.

The PUMA engine is being used with great success by the following Air Transport Companies.

The Queensland & Northern Territory Aerial Services, Ltd.

The Western Australian Airways, Ltd.

The Belgian S.A.B.E.N.A.

The Copenhagen-Rotterdam Air Line.

The Royal Swedish Mail Air Line (commencing 21st June).

The K.L.M. (Holland).

The De Havilland Aircraft Hire Service.

The Liverpool to Belfast Royal Mail Air Line.

The Seville-Larache Air Line (Spain).

In addition several British and Continental Aircraft Constructors are designing machines of new types to be fitted with 240 h.p. Siddeley Puma Engines.

AIRCRAFT DISPOSAL COMPANY LTD.

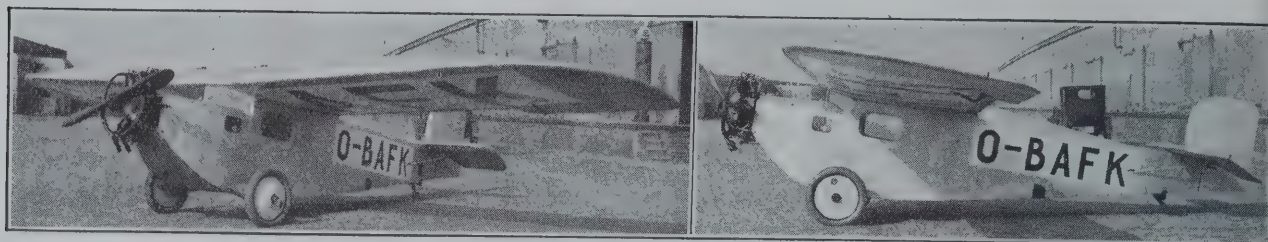
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TWO NEW BELGIAN AEROPLANES.



The A.C.A.Z. two-seater monoplane type T.2.

The International contest for the King of the Belgians Cup for two-seater aeroplanes held at Brussels on June 20 and 21 was won by Patin flying a Caudron 68 with 60 h.p. Anzani. Altogether there were five entries—two Avia 9 monoplanes with 60 h.p. Walter engines, Patin's Caudron, and the two new Belgian machines, the A.C.A.Z. monoplane and the Poncelet-Demonty monoplane. Neither of the Czechoslovakian Avias arrived in time for the contest—one having a forced landing near Gelsenkirschen on the way over, and both the Belgian machines suffered mishap in the course of the contest.

The A.C.A.Z. flown by Lt. Sage was returning to Brussels from Ostende, when owing to low clouds and heavy rain the pilot collided with a tree. The wing which struck the tree was cut in two but neither pilot nor passenger suffered any thing more serious than bruises.

The Poncelet-Demonty which was fitted with an engine of 1913 design and construction broke a crankshaft at 1,200 ft. between Liège and Gosselies.

THE A.C.A.Z. T.2.

The Ateliers de Constructions Aéronautiques Zeebrugge is a firm of recent origin and the type T.2 appears to be the first of their products to have made a public appearance. The machine has been designed for the owner-pilot of limited means and in its design low cost, low running cost, and easy maintenance have been considered to be of prime importance. Also the problem of shed accommodation has been solved by designing so that the wings can be easily folded and the machine can then be stowed in a very small space.

The machine is a cantilever monoplane of all-metal construction even to the wing covering. Duralumin is the main material with nickel steel fittings at highly-stressed points.

The fuselage is built on a frame of duralumin tubes and angles covered with sheet metal 0.4 mm. thick. Specially strong bulkheads are formed at the sections where the wing spars are attached and to the bottom of these are attached the projecting boxes which carry the landing-wheel axles. These bulkheads also form part of the structure of the cabin, which seats two side by side and is entirely enclosed and fitted with sliding windows which may be opened in flight.

The wings are built in girders built up from duralumin tubes braced by strip lattice-work forming a lattice girder. Ribs are of somewhat similar construction and the whole wing is covered with duralumin sheet.

With the exception of the rudder which is controlled by cables, large diameter duralumin tubes are used for the control connections.

The engine is an Anzani of 75 h.p. and the machine carries fuel and oil for 3½ hours' flight. The machine is said to be extremely well-behaved in the air, to control well, and to have an excellent climb. A speed of over 100 m.p.h. has been attained.

In the accident which has already been mentioned, when this machine collided with a tree, it is stated that the cabin structure was practically undamaged in the resulting crash and

that no splinters or fragments of a nature likely to damage the occupants were found inside the cabin.

SPECIFICATION.

Span	10.50 m. (34 ft. 5 in.)	Weight, loaded	610 kg. (1,344 lbs.)
Length	6.20 m. (20 ft. 3 in.)	Wing loading ...	35 kg./m² (7.12 lbs./sq. ft.)
Height	1.80 m. (5 ft. 11 in.)	Power loading ...	8.1 kg./h.p. (17.8 lbs./h.p.)
Wing area	17.5 m² (188 sq. ft.)	Max. speed	165 km./h. (103 m.p.h.)
Weight, empty	320 kg. (705 lbs.)	Landing speed ...	70 km./h. (44 m.p.h.)

THE PONCELET-DEMONTY LIMOUSINE.

This machine, built by the S.A.B.C.A. to the designs of Messieurs Demonty and Poncelet is of the same general class as is the A.C.A.Z. machine described above—that is something intermediate between the light aeroplane and the normal, heavy type of machine. Like the A.C.A.Z., it is a two-seater of the *conduite intérieur* type. It is obviously closely akin in design to the Poncelet light aeroplane.

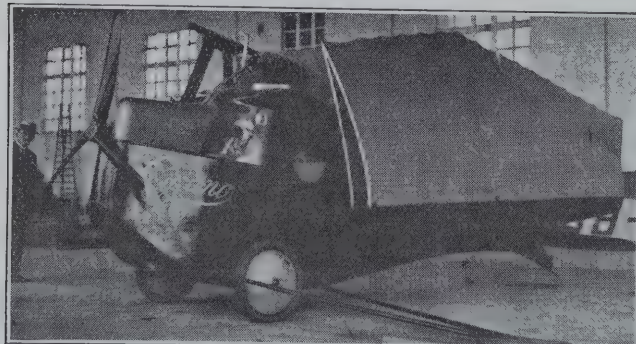
Unlike the A.C.A.Z. the machine is of wooden construction. The fuselage which is short and distinctly portly forward has concave lines behind the wing and is of quite small section at the tail. It is built on elm formers, three-ply covered, with diagonal elm bracings between formers. The cabin, which seats two, side by side, is fitted with cellulose pores holes giving a view forward and to the side. Entrance is by a side door.

The engine is a 1913 Gregoire Gyp inverted four-cylinder water-cooled of 40 h.p. Although in its time this engine was of extremely advanced design—in particular in regard to its inverted arrangement which, despite its numerous advantages, has not yet been generally adopted—it can scarcely be regarded to-day as a satisfactory aero-engine and the performance of the machine so fitted is therefore the more creditable. It may be noted that with water the engine weighs over six lbs. per h.p.

The wings, which are mounted on top of the cabin, are of a thick, heavily-cambered section, and are braced at about one-third of each half-span by a pair of streamlined wooden struts on each side running to the bottom of the fuselage. The two struts meet at their upper end in a cross member which attaches to the two wing spars—the two struts themselves forming an undeformable Vee unit.

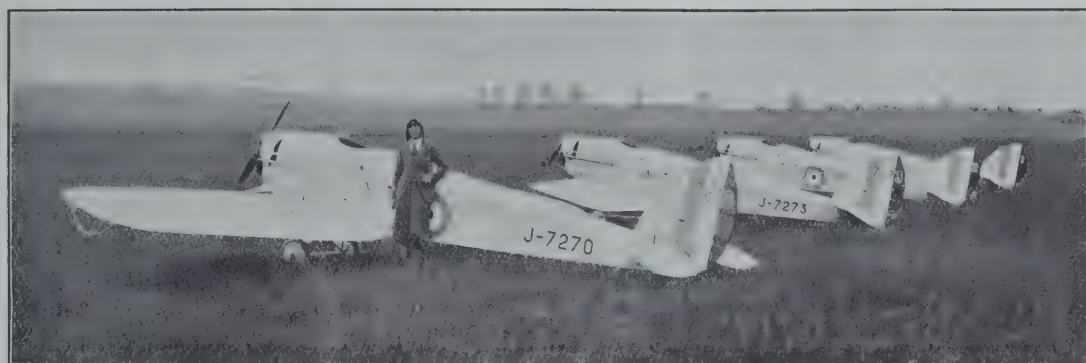
The wings are built on the normal two-spar system, and the leading edge is reinforced by three-ply running right round from the top of the front spar to the bottom thereof.

The wings are arranged to pivot about the rear spar junction to the fuselage at which point a universal joint is fitted. To fold the wings for transport it is only necessary to undo four bolts securing the front spars and extract two taper pins which lock the rear spar joint. The wings can then be folded against the fuselage with their tips resting on the tail plane where they can be locked. Thus folded the machine is



The Poncelet-Demonty Cabin two-seater.

DE HAVILLAND AIRCRAFT



A BATCH OF D.H.53 MACHINES AWAITING
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WELDLESS STEEL TUBING FOR
AIRSHIPS, AEROPLANES, GLIDERS AND
FOR ALL ENGINEERING PURPOSES.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

only 2.4 metres (7 ft. 10 in.) wide and can be transported along any normal road.

There is no fixed tail-plane, a balanced entirely movable surface being used.

The undercarriage follows light aeroplane practice, the two half-axes being pivoted on the centre line inside the fuselage and project through slots in the side thereof.

The engine bearers will accommodate the new eight-cylinder Sergeant engine of 55 h.p. which is to be some 40 kg. (88 lbs.) lighter than the present engine. As this engine develops about 55 h.p. instead of the 43 h.p. of the Gregoire, the performance of the machine should be appreciably improved.

The machine without engine is to be sold at 22,000 francs—with the Gregoire engine the price is 27,000 francs, or with the Sergeant 32,000 francs.

SPECIFICATION.

Span	12.0 m. (39 ft. 4 in.)	Wing loading ...	26 kg./m ² . (5.3 lbs./sq. ft.)
Length overall	6.5 m. (21 ft. 4 in.)	Power loading	12.1 kg./h.p.* (26.5 lbs./h.p.)
Wing area	20 m ² . (215 sq. ft.)	Max. speed	120 km.h.* (75 m.p.h.)
Weight, empty	330 kg.* (726 lbs.)	Landing speed ...	50 km.h. (31 m.p.h.)
Weight, loaded	520 kg. (1,145 lbs.)		

* with Gregoire engine.

Light-Aeroplane Trials in France.

L'Association Française Aérienne has arranged to hold a series of light aeroplane trials from July 24 to Aug. 10. The trials, which will be known as the *Tour de France des Avionettes*, will take the form of a race round a circuit consisting of Paris (Buc), Clermont-Ferrand, Valence, Nîmes, Toulouse, Angoulême, Pornichet, Tours and Paris (Buc).

The entries closed on June 30 with 15 competitors, representing four countries. France has entered nine machines, Belgium two, Holland two, and Czecho-Slovakia two.

All the pilots have not yet been nominated. The preliminary trials will take place from July 24 to 26 at the Blériot Aerodrome at Buc.

An Italian Comparative Test.

It has already been reported that the Italian Government has purchased an example of the French Dewoitine D.1.C. single-seater all-metal monoplane scout fitted with the 300 h.p. Hispano-Suiza engine. This machine has been submitted to some comparative tests with the Dornier "Falke" single-seater all-metal monoplane also fitted with the 300 h.p. Hispano-Suiza engine.

The Dornier Falke with 315 kgs. of useful load could not reach the 5,000 m. altitude imposed in the test, 25 mins. whereas the Dewoitine with 400 kgs. of load reached the 5,000 m. in 19 mins. In addition the Dewoitine has satisfactorily passed all the static tests imposed by the Italian Government.

The Dewoitine firm is certainly one of the most progressive in France. Since their establishment after the War, 1914-18 its progress has been remarkable. Dewoitine aircraft have been purchased by Yugo-Slavia, Czecho-Slovakia, Italy and Japan, and in every case the D.1.C.1 monoplane has given satisfaction.

Two recent versions of the single-seater monoplane have just arrived at Villacoublay for test. One is fitted with the 400 h.p. Gnôme-Rhône Jupiter and the other with the 400 h.p. three-row Lorraine-Dietrich engine.

The Jupiter engined machine, piloted by M. de Marmier has shown a marvellous climb and it is believed that an attack on the World's Height Record will be attempted in the near future.

At their Toulouse works a twin-engined monoplane is nearing completion. It will embody the same all-metal construction as the smaller machines, the two 260 h.p. Salmson engines being mounted on outriggers on either side of the fuselage as close together as possible, the airscrew tips being but a few inches apart in front of the nose of the fuselage.

Company Notice.

SEAPLANE AND PLEASURE TRIP CO., LTD.—E. J. Bettson, of 2, Gresham Buildings, Guildhall, E.C.2, ceased to act as Receiver or Manager on June 27, 1924.



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The machine fully loaded has a speed of 94 m.p.h., stalls at 36 m.p.h., and climbs 580 ft. per minute near the ground.

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COMMERCIAL AERONAUTICS.**The London Terminal Aerodrome.****ANALYSIS OF FIGURES FOR THE PAST WEEK.**

Trips per Day.—Monday, 26; Tuesday, 23; Wednesday, 28; Thursday, 26; Friday, 24; Saturday, 30; Sunday, 16.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Amsterdam—Berlin: Machines 105; passengers 433; freight —

AIR UNION:

Paris—London: Machines 44; passengers 235; freight 17,262 lbs.

K.L.M.:

Amsterdam—Rotterdam—London. Machines 13; passengers 53.

AERO—LLOYD:

Berlin—London: Machines 6; passengers 12.

SPECIALS:

SURREY FLYING SERVICES:

Machines 2, passengers 1

DE HAVILLAND HIRE:

Machine 1; passengers 3.

S.A.B.E.N.A.:

Machines 2, passengers 4.

Total number of trips by British machines 108, carrying 437 pas.

Foreign machines 65, carrying 304 passengers.

Comparative Figures:

For week ending July 13:

Machines, 173; Passengers, 741; Crews, 214; Total personnel, 955.

Corresponding week, 1923:

Machines, 111; Passengers, 542; Crews, 185; Total personnel, 727.

Corresponding week, 1922:

Machines, 145; Passengers, 326; Crews, 235; Total personnel, 561.

Corresponding week, 1921:

Machines, 115; Passengers, 426; Crews, 143; Total personnel, 569.

Corresponding week, 1920:

Machines, 108; Passengers, 233; Crews, 126; Total personnel, 339

Croydon Notes.

G. D. still showing no decided inclination to abandon his little yachting cap and duck trousers so long as the present sunshine continues, we are again commanded to get to it and try and be a little more coherent than we were last week.

Machines on all lines are fuller than ever and agents tell woeful tales of shoals of passengers turned weeping from their doors. There seems too to be a considerable amount of semi-night flying and we observe that machines are frequently without navigation lights and therefore it seems probable that the regulation in this respect, once so strictly adhered to, must have lapsed or been cancelled.

The American World flyers are due at Croydon on Tuesday or Wednesday and we have heard it whispered that Major Wilfred T. Blake will be there to meet them and give them a hint or two.

A snow-white Farman Goliath dropped in upon us recently, equipped with a couple of Maybach engines. It is the property of S.A.B.E.N.A. the Belgian firm which has succeeded S.N.E.T.A.

Big machines certainly give the ordinary passenger an impression of efficiency and smartness if painted white or silver and accord far more with his ideas of the "Air Liners" he has perhaps heard of (generally in connection with a special trip by D.H.4a or a D.H.9 by-the-bye). It would certainly help to convince people that Commercial Aviation is not a casually run amusement for a few enthusiastic but misguided amateurs if the pilots and staff were garbed in a uniform which would at least equal that of the traffic hands in neatness and smartness of appearance.

Passengers know very little about Civil Aviation which, by the way, is not their fault but that of the firms who don't, won't or can't advertise efficiently. An elderly gentleman appeared at the London Departure Station for passenger cars one day last week with an immense coil of rope. Questioned he stated that he thought it might be useful to tie his trunk to the aeroplane.

It is understood that an air-liner is being fitted as a pigeon loft owing to the demand made by these lazy birds to be flown instead of flying under their own power. As we go to press we hear that a Vickers Vulcan is being hurriedly fitted up as a belfrey for bats, whilst a Farman Goliath is being reconstructed as a hive for bees; which latter are to be lured from their present quarters in the bonnets of Aviation Experts for the good of all the parties concerned.

An item of intelligence which will gladden the hearts of a number of old stagers is the return of S. V. Armstrong, well known here in Airco days, who has joined Imperial Airways as a pilot.

A Record Week for the Air Lines.

A record number of passengers has been carried by the Air Lines this week. 741 passengers were carried by 173 machines besides a large amount of freight.

The previous best was 734 passengers in 209 machines which was for the week ending Aug. 20, 1922. The crews required for this numbered 342, but this year the crews numbered only 214, so that this year shows a marked commercial improvement.

In 1922 no goods in any quantity were carried, but this year about seven tons a week is the average.

The high water mark is usually reached in the middle of August and so this week's record is remarkable.

The King's Cup Race.

The Royal Aero Club have announced the supplementary regulations for the race round Britain for the King's Cup which will take place on Aug. 12.

The first prize will be the Cup graciously presented by His Majesty the King and £100 presented by Samuel Samuel Esq., M.P. The second prize will be £100 presented by Sir Charles Wakefield.

Entries will be received by the Royal Aero Club up to 12.00 hrs., Tuesday, July 29. Landgoing aircraft (hereinafter called "Aeroplanes") competing must be at Martlesham Heath and seaplanes at Felixstowe completely erected not later than 18.00 hrs. on Monday, Aug. 11, for verification by the officials, after which no alterations to the aircraft are permitted. Any competitor not having his aircraft ready for presentation to the officials by the specified time will render himself liable to exclusion from the race.

The turning points will be the harbour pier at Leith, the Castle at Dumbarton, and Pendennis Castle on Pendennis Point near Falmouth. The finish will be the pier at Lee-on-Solent which must be crossed in flight at a height of not more than 500 feet. The line may be crossed in either direction.

Seaplanes will then alight on the water and proceed to the R.A.F. slipway at Lee-on-Solent for verification by the officials and aeroplanes will proceed to Gosport for a like reason.

A list of emergency landing places in the neighbourhood of the course will be issued to all competitors. Competitors must be on the starting line fifteen minutes before the official time for starting. Any competitor crossing the starting line before the lowering of the red flag (which is the starting signal, not the standard of the Government) will be disqualified.

Change of pilot or pilots is not permitted during the race but passengers if any may be changed at any time or the equivalent weight, viz. 170 lbs. per passenger substituted. Evidently this weight was decided upon to exclude certain Gordon Bennett balloon race competitors.

The stewards may postpone the start to a later hour on the day fixed for the race or from day to day as they think fit.

Members of the Royal Aero Club who wish to be present at the start or finish are requested to apply to the Club for passes not later than August 9.

The Two-Seater Light Aeroplane Competition.

It has been found necessary to make an alteration in the date for this event. The Competition will now be held at Lympne Aerodrome near Hythe from Sept. 29 to Oct. 4. The Eliminating Tests will be held on Sept. 27 and 28.

The Head Quarters of the Royal Aero Club will be at the Imperial Hotel, Hythe. Terms (exclusive of Luncheon), 17s. 6d. per day. Members are requested to make early application direct to the Hotel for rooms.

It is understood that the postponement is owing to delay in producing suitable engines.

The Grosvenor Challenge Cup.

The Race for the Grosvenor Challenge Cup (presented by the Lord Edward Grosvenor) will take place on the last day of the Two-Seater Light Aeroplane Competition, viz., Saturday, Oct. 4, 1924.

The race is open to any aeroplane, the total piston displacement of the power plant of which does not exceed 1,100 c.c.

The distance is approximately 100 miles and will consist of two laps of the course—Lympne, Manston, Lympne.

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THE GLOBE TROTTERS.

THE BRITISH EXPEDITION.

On July 7 Sq. Ldr. Maclaren, Flg. Off. Plenderleith and Lieut. Bryant (who took the place of Serjt. Andrews who is detained at Shanghai owing to sunstroke) arrived at Kasumigaura Naval Air Station, near Tokio. They were welcomed by Admiral Komatsu, commanding the Naval Air Station, Commander Hata, representing the Japanese Navy, Lieut. Col. Royle, R.N., the British Naval Attaché, representing the British Ambassador, Col. Obata, representing the Japanese Army and various other noteworthy personages.

A stay of six days at Tokio allowed certain overhauling to be done. According to the report in *The Times*, the planes were given three coats of dope, and that although it had been arranged to change the engine at Tokio, it was decided to retain the Napier engine which had given every satisfaction in the flight from Akyab, and send the spare engine to Broughton Bay where a new dump was being laid by the Canadian Fisheries Protection Trawler *Thiepvul*.

On July 13, they left Kasumigaura for Minato, arriving there at 18.00 hours after a 12-hour flight. They were forced to land twice on the journey owing to thick fog. An attempt to reach Minato on the previous day was frustrated by a faulty radiator, and the Vulture returned to Kasumigaura. During their stay in Tokio they were very well received and were given every possible assistance by the Japanese authorities.

On July 14 the Vulture arrived at Toshimoi, Yeterufu Islands, in the Kurile Islands. Before leaving Minato, Sq. Ldr. Maclaren sent the following cable to *The Times* :—

Leaving Japan to-day along the complete chain of petrol dumps, many of which are in unexplored regions, arranged by Lieut.-Col. Royle with the assistance of the Rising Sun Petroleum Company, which spared no expense or trouble for our success. If we are unsuccessful the organisation is not to blame.

THE AMERICAN EXPEDITION.

On July 10 the American Round-the-World Expedition, consisting of the three Douglas "World-Cruisers" piloted by Lieuts. Lowell H. Smith, Leigh Wade and Erik Nelson, arrived at San Stefano aerodrome, Constantinople, after a 19-hour flight from Baghdad with a stop at Aleppo en route. Before leaving Aleppo a telegram was despatched to notify Constantinople of their departure, but this was not received

until two hours after their arrival. They followed the line of the Baghdad railway and met cloudy weather over the Taurus Mountains.

They left Constantinople on July 11 for Belgrade but the three machines were forced to land at Pancsova, in South Hungary, owing to a heavy storm. This was the first bad weather they had encountered since leaving Calcutta.

They were able to leave Pancsova early on the morning of July 12 and reached Belgrade on the afternoon of the same day.

On July 13 they left Belgrade for Vienna arriving there the same day.

On July 14 they left Vienna for Strasbourg where after a stay of just under an hour for refuelling they left for Paris.

They arrived over Paris at an altitude of 6,000 ft. escorted by an escadrille of five French single-seat scouts from Issy-les-Moulineaux.

They landed at Le Bourget at 16.35 hours and were met by an enthusiastic gathering of French and American officials. The American crews were in excellent health and spirits with the exception of Lieut. Lowell Smith who has been suffering from dysentery ever since he left Indo-China.

In the evening the crews were received by General Pershing, who is in Paris, and on July 15th they were to meet the President of the French Republic at the Elysée, and a reception was to be held in their honour at the Hôtel de Ville.

It was their intention to leave Paris for London on July 15 but at the request of the French Government and the Municipal Council of Paris, who expressed a desire to give the party an official welcome, the departure for London has been postponed until the morning of July 16 (to-day).

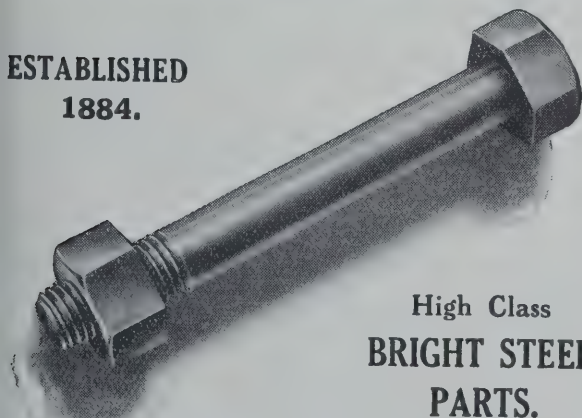
The Essential Spirit (and Oil).

On his arrival at Tokio Sqdn. Ldr. Maclaren sent the following cable to Shell-Mex Ltd. :—

At this stage and after 11,000 miles' flight I wish to express appreciation of your organisation, which has provided Shell spirit wherever required. The quality of the oil and spirit has been super-excellent throughout, and I could not wish for better results. I further wish to thank you for arranging dumps of Shell oil and spirit across the Pacific, as I realise that Shell has done all that is possible to ensure my success in flying over the seas.

RUBERY,
OWEN & Co.
DARLASTON, SOUTH STAFFS.

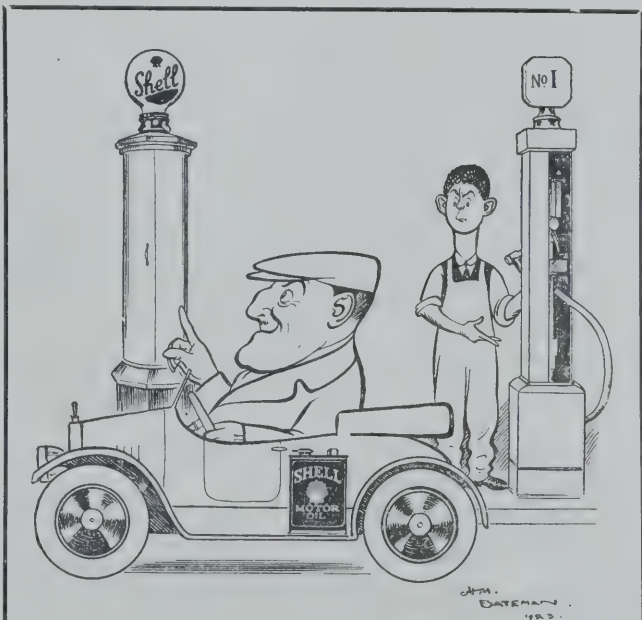
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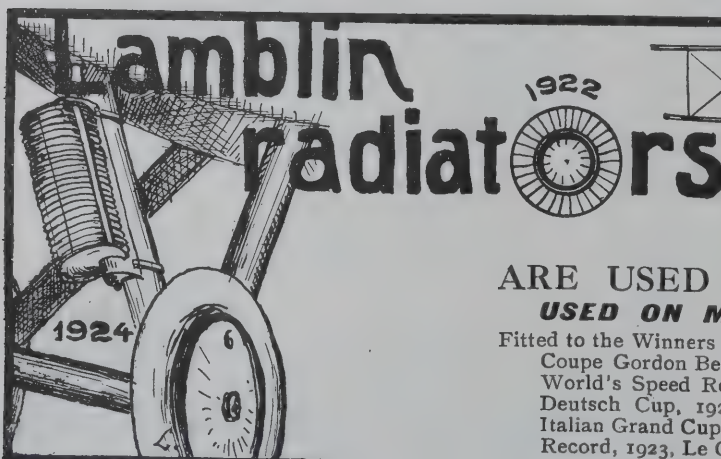
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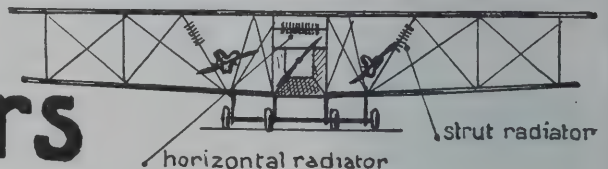
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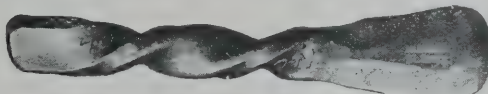
SEP 23 1924
UNIVERSITY OF ILLINOIS
PER MARE PER TERRAM AD ASTRA."



THE GLOBE-TROTTERS ARRIVE:—In the foreground are the Chicago and Bos on, the first two Douglas World-Cruisers to land of the U.S. Army's Round-the-World team. The machine on the far left is a joy-riding Avro, apparently posing as a world-cruiser.

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U.S.A., 1 Year, \$8 50c.

ON THE AMERICAN AVIATORS.

It is right and proper that the arrival in this country on Wednesday last, July 16, of the American aviators who are flying round the World should be regarded by all concerned with British aviation as the outstanding event of the current year. Not only is it our greatest sporting event of the year, but that the Aerial Derby has been let down and the Schneider Trophy has gone to America, and the King's Cup race has become a mere time-scramble, not only is it an event of international importance, but it is a sign of the domination of the Nordic peoples over all others and over the enmity of Nature herself. These men are of our own race and when they have finished their job—as they will finish it—we British people will rejoice with them as if the success had been our own.

It was an American, Orville Wright, who was the first man to fly an aeroplane under proper control. It was an American crew under Commander Read in a Curtiss-built flying-boat who first crossed the Atlantic by air. And it is in accord with precedent that an American team should be the first to circle the Globe by air.

What could be more natural? Such feats are achieved by spirit, energy, pertinacity, determination, endurance and faith. Such human qualities, and especially faith in one's future, are precisely those which inspired the ancestors of these men to pull themselves up by the roots and press ever Westward to the promised land,—“that land flowing with milk and honey” as Colonel Moore-Brabazon wittily misquoted the Norse sagas.

Our old Norse sagas, the legendary tales of the middle part of our race's history, tell us how Odin with his twelve sons (or divisional commanders) led his people from the sacred city of Asgard—which may or may not be the modern

El Ashkert beside Lake Van, where the tribes of Israel were held captive till the Assyrian Empire was broken up by the Persian King Cyrus, the patron of our old friend Xenophon who wrote the Anabasis and Katabasis beloved of the properly educated schoolboy because of the records of battles fought and parasangs covered in the daily march. The sagas tell how Odin and his people cut their way through the Caucasus and across Europe to that North-West corner in which the Nordic peoples settled and developed before sending out as off-shoots the Angles, Saxons, Jutes, Franks, Danes, Norwegians and Swedes, who between them have made all the history worth making in the past thousand years.

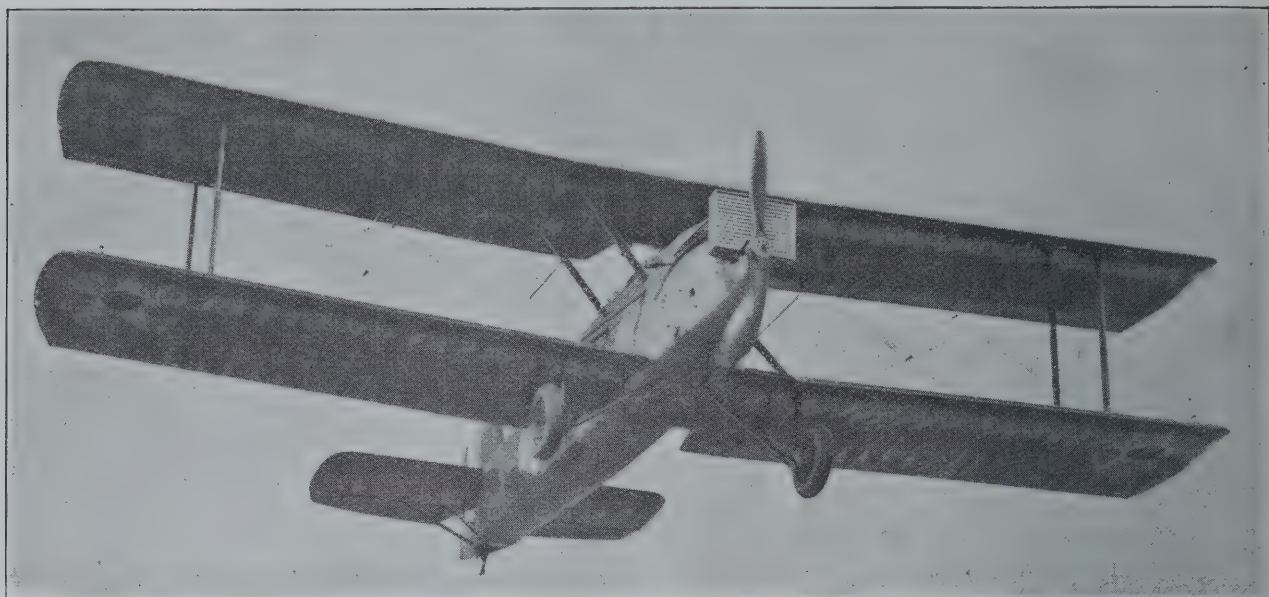
Our later historians tell how the Angles, Saxons and Jutes made the English people and how the Franks made the French and how the Norse conquest of both peoples made the English and French nations and produced that Norman aristocracy which has since led the civilised World and has conquered the uncivilised World wherever it has gone.

Our Norse ancestors discovered America hundreds of years before Columbus, but, as the humorist remarked, managed to keep it dark. And later, when the Mediterraneans (or Latins) had tried to exploit America and failed, our Jutish-English Pilgrim Fathers made New England a white man's country and some of our youthful aristocracy, driven westward by the spirit of adventure or driven out by the wave of puritanism under Cromwell, made the Southern States a fitting habitation for gentlefolk.

Always the wave of conquest has flowed westward, and perhaps there is significance in the fact that this flight should encircle the Earth in the direction in which all our ancestors have travelled. Our race may conquer from West to East and hold a country so conquered, but it cannot settle there.



THE U.S. ARMY GLOBE TROTTERS.—Left to right: Lieut. Lowell Smith, Lieut. C. P. Arnold, Lieut. H. H. Ogden, Lieut. J. Harding, Lieut. Leigh Wade, Lieut. Eric Nelson, photographed by the London News Agency after their arrival.



IN THE AIR :—One of the Douglas World-Cruisers photo graphed in the act of landing.

When we move our home it is from East to West, always with our faces to the light at the end of the day.

Thus we see that these six men of the American nation are but following the destinies of their race by completing in full circle the pilgrimage begun by their ancestors some few thousands of years ago.

THE ARRIVAL.

Their arrival in England was worth seeing. We few hundreds of people who journeyed to the serio-comic London Terminal Aerodrome at Croydon on Wednesday were well repaid for our trouble. Apart altogether from sentiment of any kind there was to anybody gifted with an imagination something admirable in the coming of these men who had fought their way through so many adversities.

We had been told that they were to leave Paris at 11.00 hours and would be due at Croydon at about 13.30 hours. But we had to wait till after 14.00 hours before the signalling Klaxon announced from the control tower of the aerodrome that there were aircraft in sight. Then, over the tree-clad hills to the east we saw five spots in the sky, a big one leading then three smaller spots and a fifth still smaller trailing behind.

A few minutes later the leading machine could be identified as the regular midday Paris-London Handley Page of the Imperial Airways service, and it was evident that the Americans, with that sensible caution which has had so much to do with their success, had sat on the tail of the air-liner all the way from Paris so as to make sure of their road. It was impossible to identify the fifth machine, and a would-be humorist suggested to a couple of senior officers of the R.A.F. who were there in uniform to receive our guests officially that this must be one of our high-speed pursuit-planes, which having been sent to escort the World-cruisers was unable to go their pace and was still vainly pursuing.

The suggestion was coldly received, for the R.A.F. are a trifle touchy about their high-speed single-seaters, which thanks to interference by official technicians are some tens of miles per hour slower than those of other nations. When it came nearer the whipper-in of the procession could be identified by the sawed-off ends of its wings and tail-plane as a single-engined Farman of some sort, which was apparently even slower than a British war-machine.

As they came over the aerodrome the three Americans closed up into a proper arrow formation to the right of the Handley Page. The pilot of the air-liner, Mr. Macintosh, led them into the regulation left-hand circuit which has to be done before landing so that pilots can see where the ground is clear, and then he sheered off in a big circuit over the open country. Thus with proper courtesy he left the sky and ground clear for the Americans to land without anything to distract the attention of the on-lookers.

The American arrow formation then changed into line-ahead and turning right-handed over the North end of the aerodrome came in from the East straight towards the crowd. Certain English pilots had made bets that the Americans would bounce on the ridge in the middle of the aerodrome, the recognised trap for all strangers. But the visitors, with their experience of alighting on land and water and ice, and having sat down unharmed on golf-links, race-courses, deserts, prairies, and other ill-assorted samples of the Earth's surface several times in the course of their 18,000 miles, found

the Croydon man-trap a mere circumstance. Each and all of them made perfectly smooth contact without a sign of that bird-like hop which is the joy of the critical aviator when on the ground.

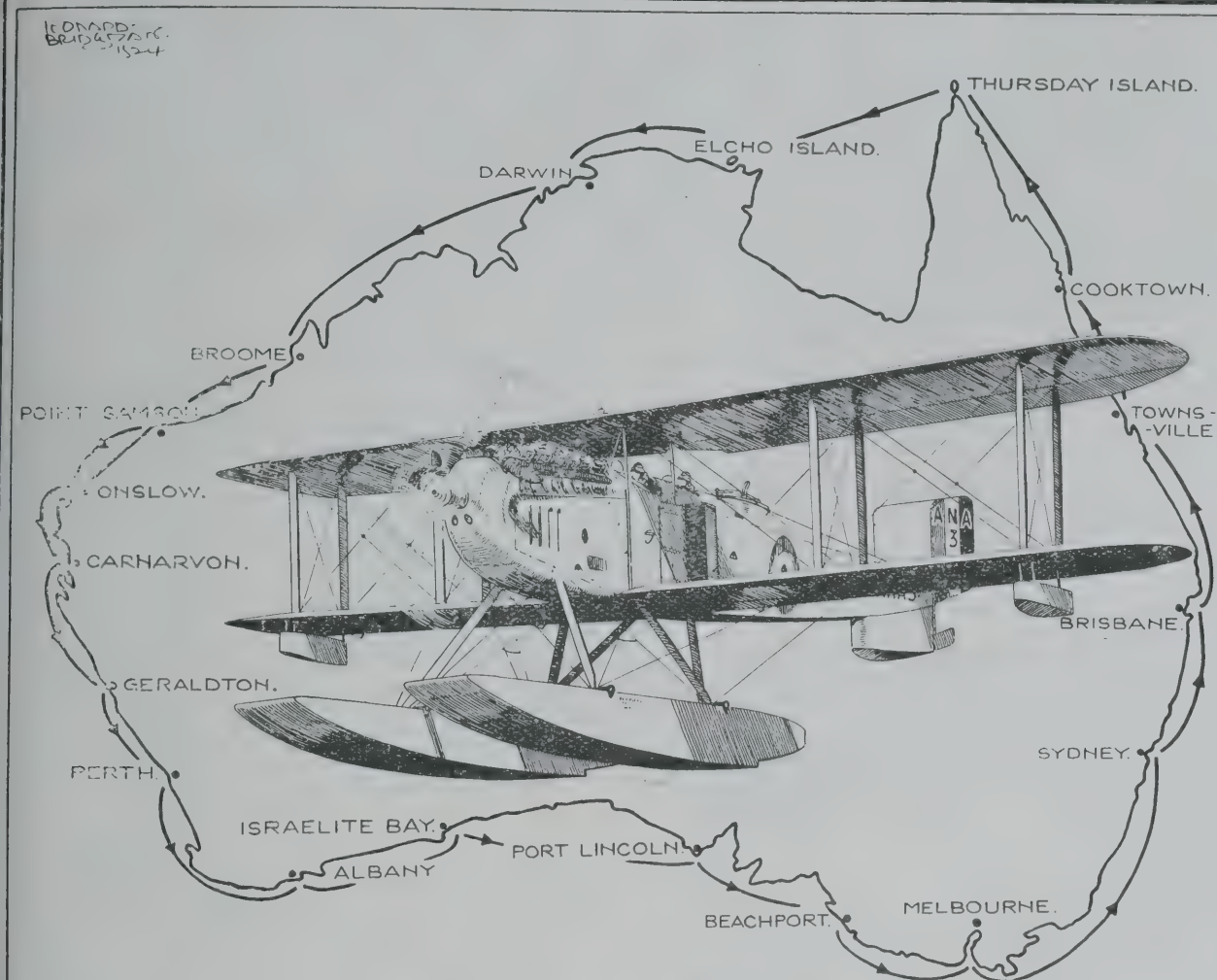
First came Mr. Lowell Smith on the *Chicago*. As he taxied neatly up to the rails in front of the enclosures he was received with cheers which he must have heard even above the bark of his big Liberty engine. Then came Mr. Leigh Wade on the *Boston*. And lastly Mr. Nelson on the *New Orleans*. Each in turn was given an equally sound and re-sounding reception. And each placed his machine neatly in line with that of the leader in proper military style.

Each pilot and passenger was welcomed by three Air Commodores representing the R.A.F., and by Sir Sefton Brancker the Director of Civil Aviation, and by the American Military and Naval Air Attachés and by sundry other official and semi-official personages and by representatives of the Royal Aero Club. After which they were thrown to the lions, in the mild shape of press photographers and autograph hunters of all ages. All looked as happy as men could be and the only thing about them which seemed travel-worn was their clothing. Otherwise they appeared to have returned from a seaside holiday. And somehow they had rather the air of men who had come home. It may be that despite all the fêting they had received from other nations they felt that there they were in foreign countries whereas here they were among their own folk.

Perhaps it was Mr. Nelson and his passenger who gave the most joy to the crowd. As the machine came to rest in the line, after bumping over the aerodrome and shaking up any petrol which could escape inside his machine, his passenger calmly produced a cigarette and matches from the recesses of his flying coat, tucked himself well down in the cockpit where the gas, if any, would accumulate, and lit-up. To an English aviator, who has been impressed from his youth with the idea that smoking in an aeroplane is like looking for a gas-leak with a candle, the act looked like premeditated suicide. And there was a sigh of relief when he reappeared in one piece and a cloud of smoke looking perfectly unconcerned at the sensation he had created and as happy as if he had met the angels whom some of us thought he was qualifying to meet.

Then Mr. Nelson removed his cap and (one hopes he will forgive the personal remark) exposed his reverend head. Whereupon somebody remarked—"What on Earth is that old cove doing flying round the World? He ought to be nursing his grand-children by the fireside instead of cavorting in an aeroplane!" The fact that he had arrived where he was should be sufficient explanation. But one may add, on the authority of one of his best friends, that Mr. Nelson is younger than he looks, that he is a perfectly good Swede who was born in Stockholm, and that he is one of the World's best sportsmen.

After climbing out of their machines and being hand-shaken and photographed the remains of the six aviators were collected and removed under a strong guard (to protect them from the crowd) to the Trust House where one hopes they were duly refreshed. So far as one could gather few other people found refreshment there, for apparently no preparations had been made to cater for a crowd. And most of the rest of us remained on the aerodrome to inspect the machines.



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8,568 miles in 90 hours

ON A

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360 h.p. Rolls-Royce Engine.

Flight-Lieut. IVOR EWING McINTYRE, O.B.E., A.F.C. (R.A.A.F.), pilot of the seaplane, said:—

"The performance of the machine was absolutely excellent throughout. I have had a good deal of experience of seaplanes but this has far surpassed anything that I had expected. You know the old bogies about sun-warping of wings, yet, although the Fairey encountered heavy rains and was then very severely tested by going suddenly into the tropics, the wood spars and general rigging stood up to it perfectly. During the whole flight we never touched a wire on the rigging. Fabric, controls and everything else connected with the machine were perfect."

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THE AMERICAN MACHINES.

These Douglas World-cruisers strike one as being very good jobs of work. So far as one can gather they are all the original stuff which left Seattle, except the Liberty engines which were changed at Karachi. They are well finished and their detail work, such as cowling and small fittings, is very good. The sound of their engines as they came over the aerodrome proved that they also had stood up to their work thoroughly.

The only thing that one did not like was that the fabric of the under side of every upper plane showed a series of waves or puckers just round and in front of the inner hinge of the aileron. They are big biplanes with wings of high-lift section with only a single pair of struts on each side of the fuselage, so that there is a long unsupported spar from the centre-section to the struts. The ailerons, which are on the upper planes only, are very long and it looks as if every time an aileron is pulled down it bends the rear spar and puckers the fabric. One believes that this question is being investigated at the Blackburn Works at Brough, where the machines are being fitted with floats and new engines for their journey across the Atlantic.

In general appearance the machines when in the air look rather like enlarged Sopwith Gnus because of their low-set engines and high humped fuselages. They obviously control well in spite of their single pair of ailerons. And they seem to land very slowly and handily. The undercarriage is of the simplest form with ordinary rubber "bunjs" shock-absorbers, and not even oleo-pneumatic legs. Evidently everything has been designed for simplicity and for ease of replacement.

They are slow, but they are intended to be cruisers and not speed-machines. They are designed to go a long way, possibly in a long while, and to get there. And their arrival in England in such excellent shape shows that Mr. Douglas has justified himself and is entitled to an important place among the World's aeroplane constructors. One congratulates him on his part in the achievements of the American team.

ORGANISATION.

Congratulations are also due to the U.S. Army and Navy for their part in the performance. The organisation of the whole flight has been excellent. The fact that the U.S. Government supports American efforts as it has supported this flight and the first trans-Atlantic flight is to the credit of the American nation without in the least detracting from the respect which we owe to the skill and daring of the crews of the machines.

When any of our people attempt such a flight they cannot look for Government co-operation, except for such unofficial help as the R.A.F. can give, or as the Navy gave Sq. Ldr.

MacLaren at Corfu. Our official people can only help, as a matter of humanity, after an accident has occurred. Our principles forbid us to assist beforehand any unofficial enterprise. All such assistance has to be purely of commercial origin.

In the United States the Government regards itself as the curator of the commercial success of the people, and gives not only its blessing but its backing to commercial enterprise. It helps enterprise and denies the more ignorant public: whereas our Treasury always dreads the Member of Parliament who asks in the House why Government money is being spent on workers who cannot promise an immediate profit instead of being spent on doles to those who prefer not to work.

Perhaps our idea is sound, in that only those with the highest faith ever attempt an enterprise of such nature. And therefore even if enterprises fail through lack of Government support they do breed men of faith—unless they die by the wayside as so many pioneers have died when adequate support and organisation might have saved them. Doubtless it is the hereditary memory of so many such dead pioneers which has made those who Govern the United States take the more human and humane view, aided by the fact that being a Republican Oligarchy and not a Democratic Monarchy it is easier for the Government to do what it jolly well pleases.

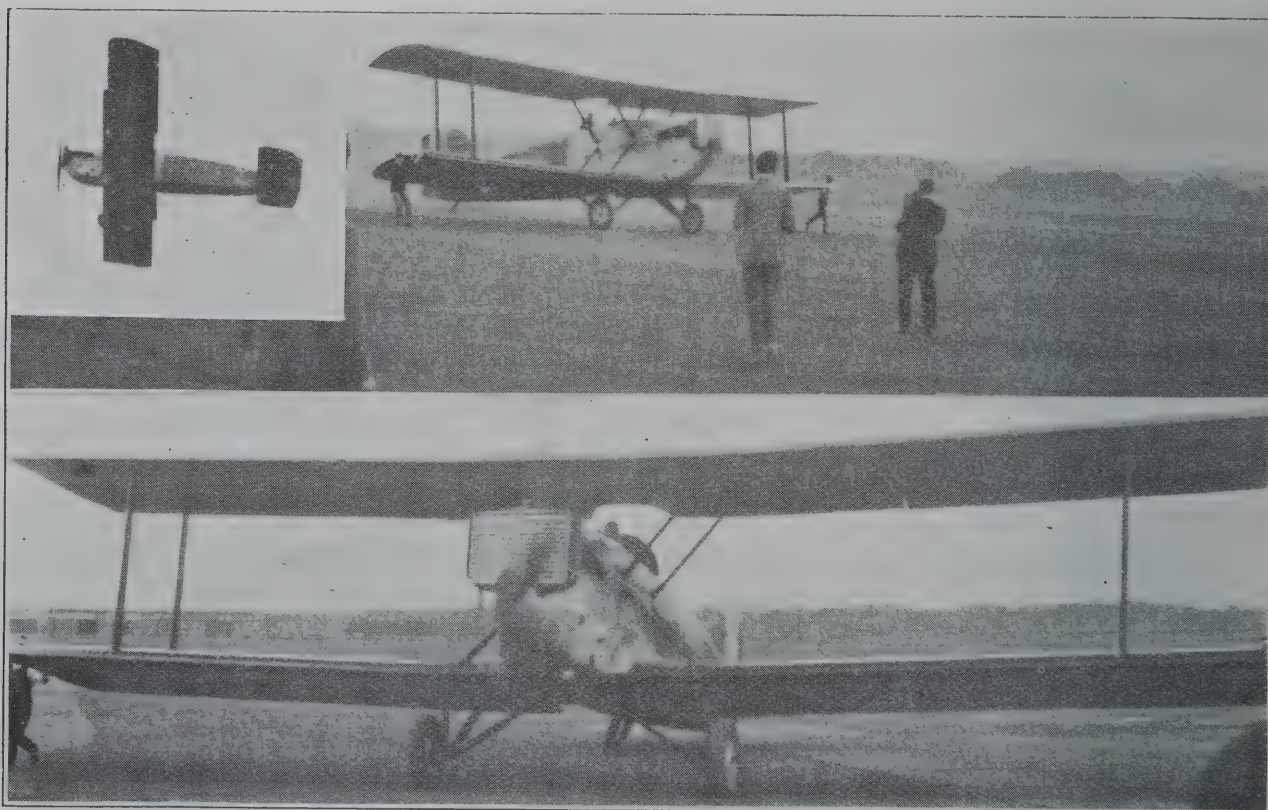
Be that as it may, our six distinguished visitors have put up a splendid performance and are in no way elated or inflated by their success. Like all men who have done great deeds they are utterly modest as individuals. They are quiet and determined men of action, as far as possible removed from the strong silent man of the ladylike novelist. They are cheery, even chatty, people, whom it is a pleasure to meet full of humour of the quiet and witty American kind, and full of good humour also. In fact, barring some slight difference of intonation and accent and a slightly more illustrative vocabulary they might be a picked bunch of our own R.A.F.—than which one can say no higher word of praise. All that one can do is wish them a continuance of that good fortune which has flown with them so far on their great journey.

THE FURTHER JOURNEY.

The American aviators left Croydon at 11.15 hours on Thursday, July 17 and flew to Brough, where the Blackburn Company are now changing the wheeled undercarriages of the Douglas World-Cruisers for floats, for the trip across the North Atlantic. They arrived safely before the storm which swept over these islands in the evening.

When taking off in arrow formation the left-hand machine seemed to have forgotten to clear the Customs and to be determined to go through them with true American hustle. Fortunately the pilot sheered off at the last moment and went round instead of through the Custom House.

On the following day Messrs. Lowell Smith, Leigh Wade



THE ARRIVAL AT CROYDON.—The leader circling to land and the other two machines taxiing to the rails.

Sir W.G.
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

and Arnold returned to London by train to be guests of the evening at the Banquet (described hereafter) given in their honour by the Royal Aero Club. The other three, as explained by Mr. Smith, remained at Brough to watch the work in progress, on the principle that while three played the rest should work.

Their route across the Atlantic will be round the North of Scotland to Iceland, and thence to Greenland, Labrador, Newfoundland and the United States. Ships of the U.S. Navy will be stationed along their route at intervals of 50 miles. Also the U.S. Navy has prepared depots of fuel and oil and spare parts at pre-arranged spots. Which is another excellent example of American organisation, for this expedition is manned and equipped by the U.S. Army Air Service and the rivalry between the U.S. Army and the U.S. Navy is no more kindly than that between our Royal Navy and the R.A.F. But in this case the U.S. Navy is working under the orders of the Government, and the officers and men, being at heart good sportsmen, will do their best for the Army aviators.

The Royal Aero Club Banquet.

The U.S. Army aviators were entertained at the Savoy Hotel on July 18 by the Royal Aero Club with Lt.-Col. F. K. McClean, A.F.C., in the Chair. After the usual Loyal Toasts Col. McClean said that he had asked Lt.-Col. Moore Brabazon to propose the health of the American airmen and to make the speech which he himself ought to have made and was unable to make because of an affection of the throat. Col. McClean then proceeded to read in a remarkably clear voice congratulatory telegrams with excuses for their absence from His Royal Highness the Duke of York, the Duke of Atholl (President of the Royal Aero Club), the Duke of Sutherland, Earl Beatty, the Earl of Cavan and Mr. Alec Ogilvie.

LT.-COL. MOORE BRABAZON said that having been trained in a severe school of discipline under Air Chief Marshal Sir Hugh Trenchard he felt that he must obey the Chairman's orders. He feared that the Chairman, Col. McClean, and he himself were passing into

history because in a recent pamphlet on aviation he had found the names coupled with that of Leonardo da Vinci.

He expressed his pleasure in proposing the toast of our guests but feared that it was for them perhaps a lachrymose occasion in that they were so near home that it would be the last festive occasion on which their glasses would be charged with the proper ingredients. Reviewing the great flights of the past which had been celebrated in like manner Col. Brabazon said that one could almost trace the history of aviation by the various Aero Club Banquets such as those given to Wilbur Wright, M. Blériot, Capt. Alcock and Mr. Whitten Brown and others. Our guests had already flown 18,000 miles and had some 7,000 miles still to cover. We were entertaining a military demonstration but merely welcoming them as sportsmen.

He felt sure that as sportsmen, even though assisted by the Government, the thoughts of our guests would turn to the lone figure of Squadron Leader MacLaren struggling unaided in the Northern seas of the Pacific.

Only a few years ago, Col. Brabazon said, this country was supreme in aviation. But now we must bow to American prowess. The victory of the U.S. Naval Air Service in the Schneider Trophy was fresh in everybody's memory. They would recall how the American team were attended by the U.S. Cruiser *Pittsburg* when the Navy could not even send a ship a few miles from Portsmouth. He said that there was no denying that post-war England was a poor country. But we had put our cards on the table and it was going to pay in the long run. Our Government could not afford to support aviation as other countries did. But our guests must not think that we were a back number. We should soon be going to America and winning the Schneider Trophy.

Our admiration for our visitors was sincere. Their organisation was a model for all to follow. In all our relations with the United States we refused to look on the States as a foreign country. We treated every American as one of us. If the laurels could not come to us we would rather they went to America than to any other nation.

Our guests had done so much that their thoughts must already be flying towards their own country, that promised land which, owing to its legislation and prosperity, might be described as flowing with milk and money. They were writing a golden page in history. If congratulations and admiration and good wishes could help them on the last stage of their journey that stage would be the easiest of all.

THE LORD THOMSON, Secretary of State for Air, supporting the toast said that he had never had a greater pleasure than to-night. He had all followed the exploits of our guests with sincere admiration free from jealousy. All airmen were members of a great brotherhood. He acknowledged on behalf of British aviation the generous help given by the United States Navy to Squadron Leader MacLaren in bringing his spare machine from Japan to Hong Kong.

People asked what was the practical value of a World flight? His own view was that even if it was not of value as a test of endurance, even if the meteorological knowledge gained was of value, even if observation of the effects of heat and cold on the mechanism of the aeroplanes was not of value, there was something much more precious in such an exploit in that people were thrilled by the thought of the men who faced such difficulties. If we in the World were ruled entirely by utility and had no desire for progress we should still be living in caves, and he imagined that the man who spoke in favour of utility and against ideals would be occupying the least draughty parts of their ancestral caves.

Our American guests had given us some conception of what human courage could do. Nerve and skill played their part in the progress of humanity. He wished our guests God speed on the last stage of their venture.

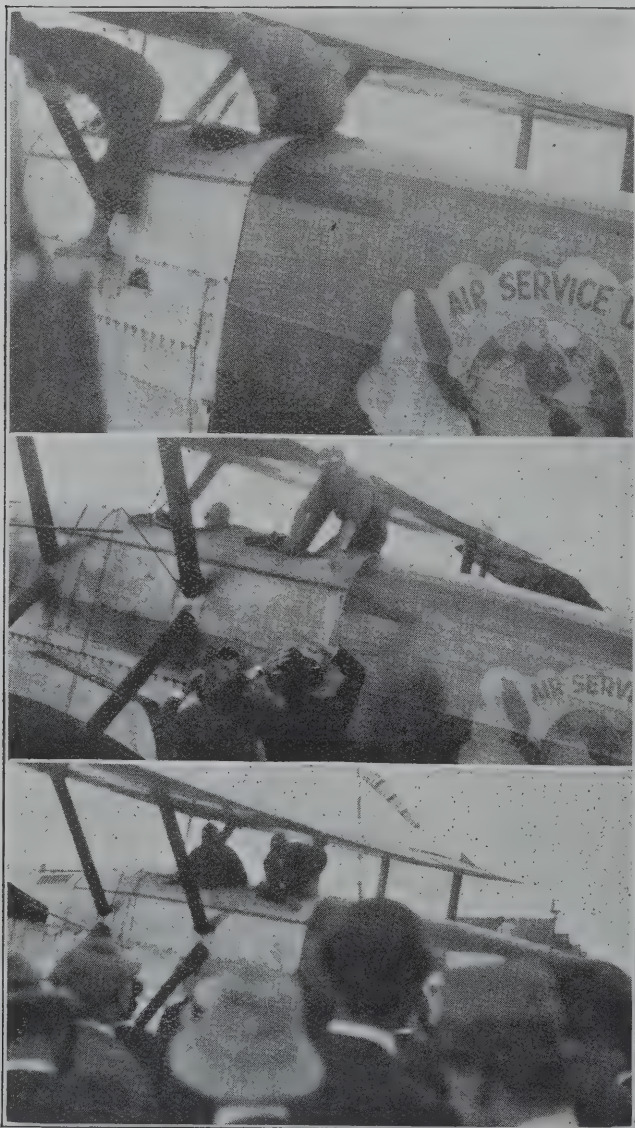
AIR CHIEF MARSHAL SIR HUGH TRENCHARD, who was received with prolonged applause, said that it was a great honour to be asked on behalf of all ranks of the Royal Air Force to welcome the representatives of the United States Army Air Service. The Air Force had watched with admiration every detail of their organisation. They all felt proud that American aviators had worked so closely with us in the last War.

Our guests had set a fine example of grit and endurance. They had lost their first leader, Major Martin, but the remainder had carried on as all American and English airmen did under difficulties. English and American aviators always displayed enthusiasm in getting their job done. There was no harm in the rivalry between the two nations. Our guests were full of a natural enthusiasm to get their job done not as individuals but as aviators. He expressed the great debt we owed to America for the help given to MacLaren. The grit and determination of our guests had carried them through so far and he hoped would carry them to the finish.

THE AMERICAN AMBASSADOR, MR. F. G. KELLOGG, congratulated the American aviators on their performance. He also wished on behalf of the American people to congratulate Squadron Leader MacLaren now struggling in the wilds of North Japan. [One believes that he is some distance North of Japanese jurisdiction.] Mr. Kellogg compared him to Peary, Scott and Shackleton, the heroes of the North and South Poles. [He did not explain why he omitted Amundsen who actually discovered the South Pole.] In aviation America was associated with the great British nation. They were of the same race, with the same ideals, and the same form of Government. England was facing her problems and stood before the World as a nation which kept her promises and proposed to outlive the wreck of war.

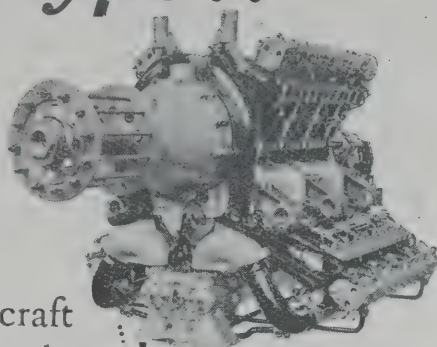
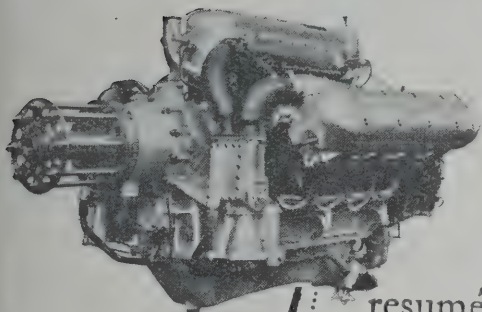
LIEUT. LOWELL SMITH, U.S. ARMY AIR SERVICE, the leader of the expedition, who was received with heartfelt enthusiasm, said that this speech-making was one of the most difficult things in the round-the-world flight. The last time he had had to speak the applause came from that part of the room where the people could not hear him. He said all the American aviators were glad to hear of MacLaren's safety and said that they had heard of it by a special messenger before anybody else knew about it.

Continuing, he said how sorry he was that he had nobody to



DEBARKING.—The three crews descending from their machines.

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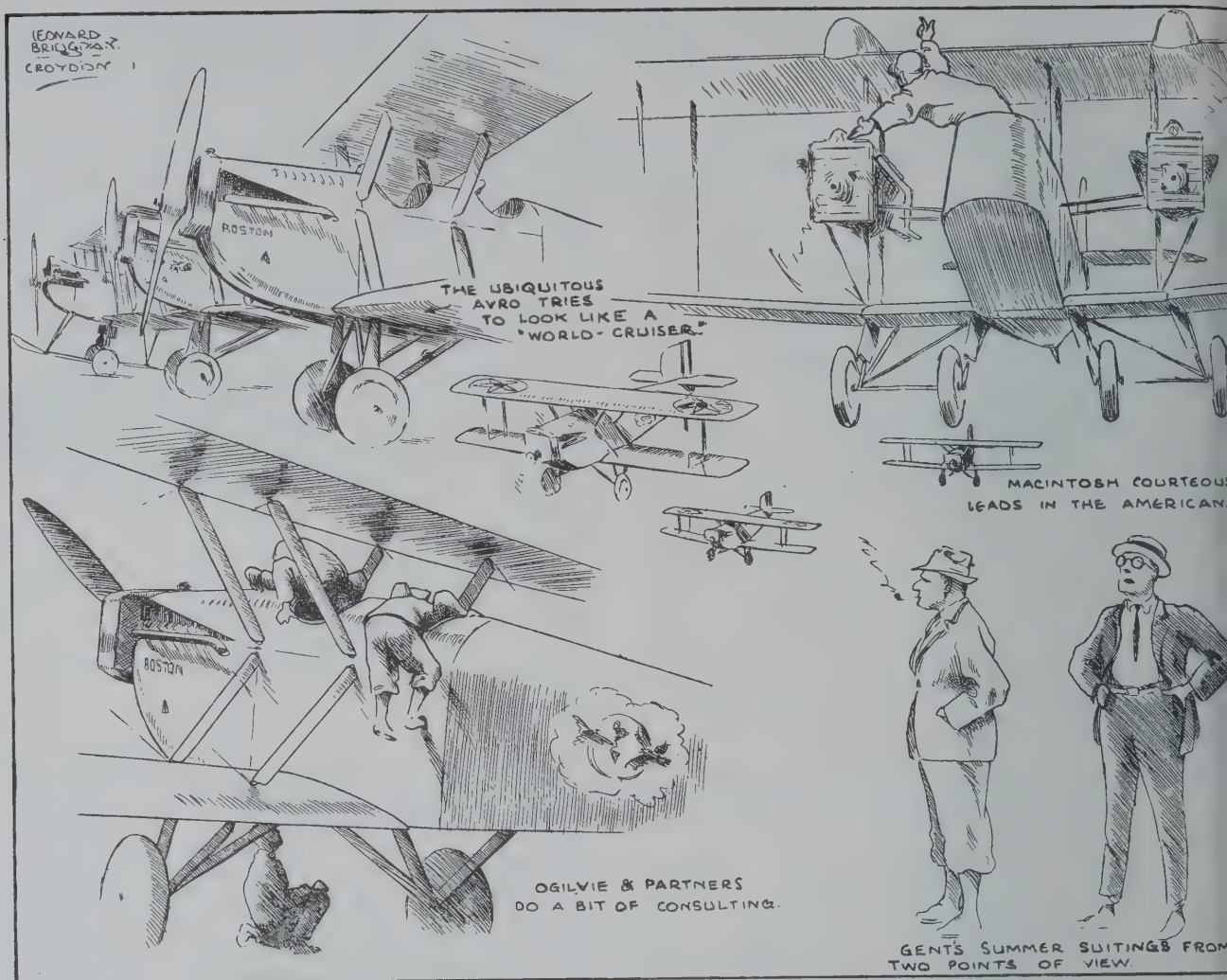
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



THE GLOBE TROTTERS.—As their arrival was seen by "The Aeroplane's" Artist.

back upon for his speech as had Col. McClean. Speaking personally he said that the hardest part of carrying on after Major Martin's accident was trying to express their gratitude to the English for the help they had had ever since they struck British territory. It began at Hong Kong. Everywhere the Royal Air Force had insisted on doing something more for them in spite of their protests that there was nothing more which could be done for themselves or their machines. He emphasised the fact that they were working for the furthering of aviation in the World and not for any one country or people.

He said that they had been very much impressed during their visit to Croydon by the state of Commercial Aviation, particularly by the fact that eighty per cent. of the passengers on the air lines were Americans. He regretted that only three of the American aviators were present and remarked that they had a job of work to be done on their machines at the Blackburn Aerodrome at Brough and they thought that while three of them enjoyed themselves the other three ought to stay and help with the job.

In conclusion, Mr. Smith, like the good sportsman that he and his brother officers are, proposed the health of Squadron Leader MacLaren and his companions.

[Altogether it was a most charming and modest speech. Mr. Smith's whole attitude gave one the key to the success of the expedition under his command. His lack of that self-assertiveness of the kind which has become familiar in this country through the ordinary American business man is as typical of the American Army officer of the best class as it is of the English Army officer. But under it obviously was that quiet self assurance which has carried men of the Nordic race where none others could go. And his gentle humour is of that kind which helps our people through difficulties when the mere strong silent man breaks. If one had to get away with a really difficult job one would like to have Mr. Lowell Smith there to help. The American round-the-World expedition is to be congratulated on its leader.]

AIR VICE-MARSHAL (or Major-General) SIR SEFTON BRANCKER proposing the toast of the Guests said that our guests that evening were the ladies and the Americans and he was very fond of both. The ladies we had always with us but unfortunately not so the Americans. He asked those present to look at the names of the American aviators: Smith, Nelson, Wade, Arnold, Harding and Ogden and then say whether England could not claim having had some little hand in this achievement even if in the remote past. [The only flaw in this argument is that Mr. Nelson is a pure Swede born in Stockholm. Possibly his name was originally Nilsen and has become Anglicised.]

Sir Sefton said that aviation was going to bring the two nations closer together and that friendship and understanding between the

United States and the British Empire were the greatest factors for the peace of the World. He said that the Royal Aero Club owed a debt of gratitude to the United States. The American Navy given us a thorough beating in the Schneider Trophy competition and it had done us a lot of good.

Altogether it was a most successful evening. The Committee of the Royal Aero Club may not be at its best in organising flying competitions but it certainly can do a great deal more quietly and properly. After the speeches the American aviators were surrounded by wild autograph collectors and surrendered to them with the best imaginable grace. After a while they were taken to the Prince of Wales and presented to his Royal Highness the Prince of Wales who, the majority of the company which had assembled to greet them proceeded to dance till the small hours.—C. G. G.

THE DOUGLAS WORLD-CRUISERS.

The Douglas World Cruisers, flown by the American Round-the-World Team, are in all essentials the Douglas D.T.2 Torpedo-carrier which was built and designed for the United States Navy by the Douglas Company of Santa-Monica, California.

The D.T.2 torpedo-carrier was the first type built by the Douglas firm for the American Services and has become the standard equipment of the U.S. bombing and torpedo squadrons. It has been built not only by the Douglas firm but also by the Naval Aircraft Factory and by several sub-contractors.

The machine is a single-bay tractor biplane fitted with interchangeable wings and with interchangeable wheel and float undercarriages. The engine is the 400 h.p. Liberty with the latest improvements.

The fuselage is built of electrically-welded steel tubes swaged rod bracing, built in three detachable sections—carrying the engine, followed by a centre section to which the wings and undercarriage are attached, and a tail section.

The wings are of the usual timber construction, the structure being of box section. The fin and rudder are wooden, the elevators and tail planes are of welded steel tube.

The land undercarriage, which has a track of 10 ft. fitted with separate half-axles running up to the fuselage thus giving a clear drop for torpedoes, etc.

The type was selected for the Round-the-World flight because of its sturdy construction proved in service by

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THE BEST IN THE WORLD

Some extracts concerning the recent flight of 8,500 miles round Australia from "The Aeroplane" of May 22nd, 1924, entitled

"ON THE AUSTRALIAN TRIUMPH"

"A performance which may fairly be claimed as the finest flight in the history of aviation."

"The durability and reliability shown by the Fairey seaplane and the Rolls-Royce engine have established once more the reputation of English aircraft design and material in the esteem of the aeronautical authorities of foreign nations"

RELIABILITY

Some Successful Flights made by Rolls-Royce Engines:

England to Australia	11,500 miles
England to S. Africa	6,281 miles
England to Sweden (and back)	2,450 miles
England to Constantinople	2,160 miles
Across the Atlantic	1,890 miles
England to Finland	1,100 miles
England to Warsaw	1,050 miles
England to Madrid	855 miles

These flights were accomplished without any change of engines en route

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THE DOUGLAS WORLD-CRUISERS.—Here is seen one of the machines on which the U.S. Army Aviators have made their great flight.

The high-arched fuselage is noticeable, as is the low-set engine (a Liberty 12-cylinder of 400 h.p.). The wide undercarriage is noteworthy as giving stability on the ground, though its original intention is to give a clear drop for a torpedo.



freedom from mechanical breakdowns and for its great load-carrying capacity. In addition the known reliability of the Liberty engine was taken into account.

Although in all structural essentials the World-Cruisers are standard D.T.s the equipment of the machines has been specially designed for the round-the-World flight, the load capacity normally devoted to military purposes being diverted to the carrying of extra fuel, etc.

As a land machine the World-Cruisers carry six aluminium petrol tanks of a total capacity of 600 gallons. Of these tanks one of 60 gallons capacity is carried in the top wing centre section and is used as a gravity service tank. A second tank of 150 gallons capacity is fitted just behind the engine, separated therefrom by a fireproof bulkhead, a third of 160 gallons is fitted in the fuselage below the pilot's floorboards, a fourth of 105 gallons is below the observer's seat, and the fifth and sixth tanks of 62½ gallons are fitted in the bottom wing roots. When the machine is fitted with floats the second tank of 150 gallons behind the engine is removed. The fuel from the main tanks is fed to the service tanks by petrol pumps.

With all six tanks filled the range at cruising speed is about 2,200 miles. As a seaplane with 150 gallons less fuel capacity the range is reduced to about 1,600 miles.

Two oil tanks of 20 and 30 gallons capacity respectively are carried one on each side of the engine. The radiator is of the simplest form, mounted over the nose, and is arranged to be easily accessible and simple to repair. A ten-gallon reserve water tank is carried in the pilot's cockpit and a pump permits the radiator to be replenished therefrom in flight.

The engine is fitted with an electric starter.

Complete dual control is provided and the machine carries a wireless direction-finding gear.

As a seaplane the machines are mounted upon long floats of the usual American type with no tail or wing-tip floats.

The improved Liberty engines fitted to these machines develop some 420 h.p. and weigh somewhat less than 2 lbs. per

h.p. By careful attention to the design of minor details both the fuel and the oil consumption of the Liberty has been very considerably reduced, and its reliability appreciably increased. Very careful attention has been given to the engine and fuel installation to secure freedom from fire risks.

SPECIFICATION OF THE DOUGLAS WORLD CRUISER.

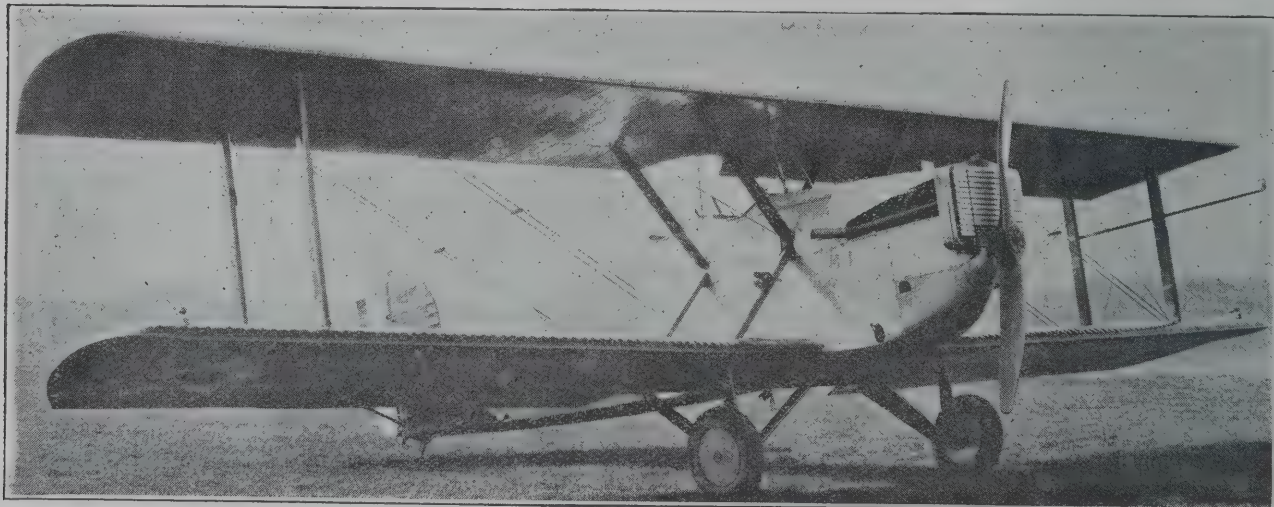
Performance, as Land Plane.	
Seats	2
Span	50 ft. (15.25 m.).
Length	35 ft. 6 in. (11.12 m.).
Height	13 ft. 7 in. (4.15 m.).
Wing area	707 sq. ft. (66 sq. m.).
Engine	420 h.p. Liberty.
Weight empty	4,300 lbs. (1,945 kgs.)
	(land plane).
	5,100 lbs. (2,295 kgs.).
	(seaplane).
Weight loaded	6,915 lbs. (3,112 kgs.)
	(land plane).
	7,715 lbs. (3,492 kgs.).
	(seaplane).
Performance, as Seaplane.	
High speed	103 m.p.h.
	(166 km.h.).
Low Speed	53 m.p.h. (86 km.h.).
Service ceiling	10,000 ft.
	(3,000 m.).
Cruising range	2,200 miles
	(3,550 km.).
High speed	100 m.p.h.
	(161 km.h.).
Low speed	53 m.p.h. (86 km.h.).
Service ceiling	7,000 ft.
	(2,000 m.).
Cruising range	1,650 miles
	(2,660 km.h.).

Bombing Squadrons in the R.A.F.

In the House of Commons on July 10 Mr. THURLE wanted to know the number of bombing aeroplanes it is proposed to maintain at Worthy Down and why. Mr. LEACH replied that the functions of the Squadrons at Worthy Down would be determined by the necessities of the air defence of this country. Mr. THURLE then wanted to know whether the Air Force stocked aerial bombs filled with poison gas and Mr. LEACH replied in the negative. Mr. THURLE's next inquiry concerned the aircraft apprentices. How many were there and would they be trained for service on bombing aeroplanes? Mr. LEACH said that there were 645 boys of 17 and none of them were under training as pilots at present although it was impossible to foresee how many would eventually be employed for aerial work in bombing squadrons.

LIEUT.-CMDR. KENWORTHY: How many chaplains are there for the instruction of these boys?

LIEUT.-COL. JAMES: When these boys reach the stage of pilots are they instructed in the art of throwing leaflets?



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„	„	„	„	„	1922
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THE GLOBE TROTTERS.

THE BRITISH EXPEDITION.

Early on July 16 Sq. Ldr. Maclaren left Yeterufu in the Kurile Islands for Paramushir Island at the northern end of the Kurile Group. From the time of his departure until July 18 the Vulture and her crew were reported missing.

As soon as she was reported as being overdue at Paramushir Island a number of Japanese destroyers began a search of the Kurile Islands. An additional base had been laid at Broughton Bay half way between Yeterufu and Paramushir Island and when it was found that this base had not been used a more intensive search was made, and more Japanese destroyers were ordered to hold themselves in readiness to take part in it.

On July 18 the Japanese destroyer *Isokaze* which was engaged in the search picked up a message from a Japanese merchant steamer that the Vulture had landed at Uruppu Island near the starting point at Yeterufu.

On proceeding there they found the Vulture safely moored out. It had alighted on July 16 in a bay to the S.W. of the island having been forced to descend by dense fog. Flg. Off. Plenderleith has since been taken ill.

A wireless message from the *Isokaze* received on July 20 states:—

Dense fog prevails around Urup and there is a strong westerly wind of 44 m.p.h. It is impossible for Maclaren to proceed to-day. Plenderleith is still feverish, with a temperature of 102.3 deg. He is now being nursed by the *Isokaze's* doctor at a blue fox farm in Tokotan Bay, Urup Island. The remainder of the crew is being hospitably entertained at the farm and the *Isokaze* is supplying provisions. The amphibian is in good condition.

The Britannia Trophy.

After consideration of the various performances in the air for the year 1923 the Committee of the Royal Aero Club has decided to award the Britannia Trophy for the year to Mr. Alan J. Cobham, for a flight on a D.H.9c (240 h.p. Siddeley Puma).

The flight extended over a period of two months beginning on Feb. 25. The tour was approximately 12,000 miles in length, starting from London and including visits to Egypt, Palestine, French Syria, the North Coast of Africa, and by way of Tripoli, Tunis, Algeria, Morocco and through Spain, back to London.

From Southampton to Stockholm.

Lieutenant Flory, of the Swedish Royal Naval Air Service, flying a Fairey III D (360 h.p. Rolls-Royce Eagle engine) left Southampton at 10.45 hours on June 16 and arrived at Stockholm at 13.00 hours the next day without incident. The start from Southampton was delayed owing to fog but he left directly it lifted. After leaving Southampton Mr. Flory flew east of the Isle of Wight to avoid the prohibited area near Portsmouth. He immediately ran into fog and low clouds which conditions continued until he reached Calais. Off Brighton he made an attempt to get under the fog but without success as it was practically right down on the sea.

From Calais to Vlissingen (Flushing) the weather was clear but at Vlissingen clouds gathered again and Mr. Flory had to fly the machine very low until reaching Haarlem. Here it cleared again and at Ymuiden he climbed to a good height and alighted at Amsterdam at 14.42 hours. After an hour's stop at Amsterdam to fill up with petrol and oil he started again along the coast flying low again. At Brunnsbüttel it cleared up and a landing was made at Kiel at 19.55 hours after a flight over the Kiel Canal.

At Kiel considerable difficulty was found in getting petrol. At 03.00 hours the following morning after knocking up a number of different people he managed to get petrol and left Kiel at 05.20 hours. Flying over the Danish Isles Mr. Flory was obliged to keep below 300 feet owing to mist but at 07.10 hours he saw the Swedish coast and landed at Karlskrona at 09.38 hours.

Customs and military reports delayed matters somewhat and he was not able to take off until 11.00 hours. The weather was now quite clear and with a good following wind he reached Stockholm at 14.00 hours. The Admiral and a number of senior officers received him on his arrival.

Mr. Flory has written to the Fairey Aviation Company expressing his delight with the machine. He says that the whole flight went according to plan and the Fairey arrived in perfect condition. During the whole 1,800 kilometres he was quite satisfied with the seaplane and its engine. He has received a letter of congratulation on his flight from Her Majesty the Queen of Sweden.

The Oxford University Arctic Expedition.

The Oxford University Expedition to the Arctic left the Tyne on June 19. The expedition, which is under the leadership of Mr. George Binney, is to explore North Eastland, an island to the N.E. of Spitzbergen.

The boat in which the beginning of the trip will be made is the "Polar Björn," one of the best Arctic boats in the North of Norway. She makes a good eight knots, has plenty of accommodation, and is quite strong enough for the conditions of the Arctic. The crew consists of Tromsø men who are all young and have been sealing in the Arctic since the age of ten. The "Polar Björn" will make straight for the Trondhjem Fjord and then up to Tromsø.

At Tromsø Capt. Hansen was to join the expedition and Col. J. E. Tennant, D.S.O., who will lead the sledging parties. Mr. Baker and Mr. Thorneycroft will be transferred to the 40-ton sloop *Oiland*. The expedition ought to arrive at Grete Harbour, Spitzbergen about the end of the month.

Here the Avro Seaplane (Armstrong-Siddeley Lynx engine) was to be assembled and flown to Liefde Bay, which is to be its base while the aerial survey of North Eastland is in progress. The machine is to carry five weeks' emergency rations for three men and a collapsible boat.

The original pilot, Capt. J. O. Groves, who started with the expedition has suffered a breakdown in health and Mr. A. G. B. Ellis, lately a Flying Officer in the R.A.F., left London on June 28 to replace him. Mr. Tymms, recently of the Air Ministry, is to be the navigator and Capt. Taylor the engineer.

The idea is for the seaplane and sledges to co-operate and both will be in wireless communication with the "Polar Björn."

Before leaving the Tyne the expedition was presented with a silver shield by the Prince of Wales. The shield bears the crest of the University, a design symbolic of Polar exploration and an inscription wishing success to the Expedition.

The Times of July 21 states:—

A wireless message from the motor-ship *Polar Björn*, dated Spitzbergen, July 15, says:—

Shortly after midnight, Mr. George Binney (leader of the Oxford University Arctic expedition) and Captain Ellis (pilot of the seaplane) were rescued from the expedition's seaplane in a heavy sea after drifting for nearly 14 hours.

They had set out in the seaplane to fly from Green Harbour, where the seaplane was assembled, to Liefde Bay, where the seaplane base is being established. After an hour's flying the machine made a forced landing on the water at about 10.43 a.m., and in the early afternoon the fact that the machine was missing became clear to those on board the *Polar Björn*.

A search was begun, but it was not until midnight that the seaplane was located, drifting westward in a heavy sea to the north of Prince Charles Foreland. Happily, both were safe and well, though somewhat exhausted. They are now on board the *Polar Björn*.

Contrary to all expectations, the seaplane, owing to its exceptional seaworthiness, was saved.

The following telegram has been received by A. V. Roe and Co. Ltd. from Mr. Binney:—

Most sincere congratulations on amazing seaworthiness of seaplane 18 hours heavy seas undamaged floats dry. Ellis 9 years' seaplane experience considers performance unrivalled undoubtedly owe our lives to your fine workmanship.

(Sgd.) BINNEY, Oxford Expedition.

The Aerial Derby Abandoned.

Because Great Britain has not a single racing machine in flying condition and because sufficient prize money to attract foreign entries is not available, the Aerial Derby, the only British speed race and the oldest established speed race in the World, has been abandoned.

A French Mission in Persia.

Following the visit to France of a Persian Military Mission, a French Aviation Mission has been sent to Persia to establish an aviation school at Teheran. This mission under M. Berhault has two Potez VIII, two Spad 42 and two Breguet XIV machines as its equipment. Owing to lack of transport facilities the machines had to be flown from Bushire to Teheran a distance of 1,200 kms.

A Turkish Mission in Europe.

A Turkish Mission headed by Col. Mouzaffer Bey and including Commander Fessa Bey, Capt. Djemal Bey and Mourad Bay and Lieut. Vidjiri, are at the moment making a tour of inspection of the aeronautical establishments in Great Britain, France, Italy and Germany.

As the result of their visit to France they have purchased a number of Breguet, Caudron and Hanriot aircraft amounting to 40 in all. And 10 Turkish officers have arrived at Istres near Marseilles to undergo a course of instruction in flying.

The Turkish Aviation Service is now in course of re-organisation, and the above machines purchased in France will be used in the Turkish School of Instruction at Eskicheir.

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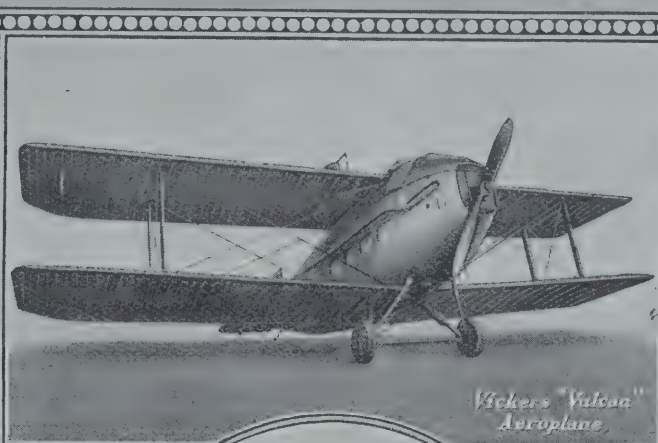


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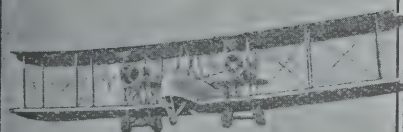
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THE ROYAL AIR FORCE.

The London Gazette.

July 15.

GENERAL DUTIES BRANCH.—Flg. Off. R. L. Edward (Lt., King's R.) is granted a perm. commn. in the rank stated (July 16).

The follg. are granted S.S. commns. in the ranks stated with effect from, and with seny. of, the dates indicated:—Flg. Offs.—(For seven years on the active list) P. J. Bett (Lt., R.A.R.O., Gordon Highlanders); N. T. Goodwin (Lt., Indian Army, retd.); D. H. Macdonald-Lawson (Lt., R.A.R.O., Lancs. Fus.); P. J. Phelan (Lt., Indian Army retd.) (July 8). Plt. Offs. ON PROB. (for five years on the active list).—R. H. Holmes, I. W. C. Mackenzie, W. F. Parkinson (June 30); G. A. Cruickshank, E. L. Leader (July 5); H. B. Barrett, S. F. Bell, A. E. Carpenter, D. P. Clayton, W. A. Cooke, J. E. Davies, B. B. Dowling (Lt., R.A.R.O., Manch. Regt.), L. A. Eggesfield, A. C. Evans-Evans (Sec. Lt. Northants. Regt.), H. R. Gillespie, W. E. Gray, R. C. B. Hendy, J. H. Hunter (Lt., R.A.R.O., Worcs. Regt.), M. H. Jenks Capt., R.A.R.O., Glos. Regt.), N. S. Little, D. J. Lloyd, C. W. Martin, H. Miller, C. H. Morgan, R. W. Steele, W. E. Symonds, A. J. Thompson, C. W. L. Trusk, H. Walker, D. G. Wilson (July 8).

The follg. Pilot Offs. are promoted to the rank of Flg. Off.:—V. J. Hutton (Apr. 2); F. R. Lines (June 1); R. E. Bain (June 13); O. R. Pigott, A. W. Daly, A. J. R. Moss, E. S. Brinsmead, F. Larman, F. A. Briggs (July 3).

The follg. Flg. Offs. are granted the hon. rank of Flt. Lt.:—A. N. MacNeal, W. F. R. Gough, R. H. S. Peter, R. O. Rigg (June 20); G. Anderson, A. W. Bates, H. M. Burrows, G. A. Cavis-Brown, C. W. Croxford, D.S.C., J. C. E. A. Johnson, D. S. Cairnes (June 23); U. C. de Burgh, V. J. Somerset-Thomas (June 24).

Group Capt. the Hon. J. D. Boyle, C.B.E., D.S.O., is restored to full pay from half-pay with effect from Feb. 23, 1924; Flt. Lt. E. R. Clement Scholefield, A.F.C., D.C.M., is placed on half-pay, scale B (July 1); Group Capt. R. Gordon, C.B., C.M.G., D.S.O., is restored to full pay from half-pay (July 21); Flt. Lt. F. Whittaker is placed on the ret. list (July 12); Flg. Off. (hon. Flt. Lt.) P. N. Melitus (Capt., R. Warwick Regt.) relinquishes his temp. R.A.F. Commn. on return to Army duty (June 30). The notification in the Gazette of July 8, 1924, concerning Flg. Off. H. A. Anson, is cancelled.

STORES BRANCH.—The follg. Plt. Offs. on probation are confirmed in rank and promoted to the rank of Flg. Off. (June 10):—C. W. Gore, M. W. Keay.

MEDICAL BRANCH.—The follg. are transferred to the Reserve, Class D.2:—Sq. Ldr. E. P. Punch (July 13). Plt. Lts.—C. H. B. Thompson (July 13); B. C. W. Pasco (July 17).

Appointments.

Week ending July 21.

GENERAL DUTIES BRANCH.—Group Captain Hon. J. D. Boyle, C.B.E., D.S.O., to H.Q., Inland Area, for Air Staff duties, 1/8.

Wing Commanders T. R. Cave-Browne-Cave, C.B.E., to No. 1 S. of T.T. (Boys), Halton, for technical duties, 6/8; C. R. S. Bradley, O.B.E., to Station H.Q., Duxford, to command, 1/8; J. H. A. Landon, D.S.O., O.B.E., to Air Ministry for temporary duty, 4/7; A. W. Tedder, to No. 10 Group H.Q., Lee-on-Solent, for Air Staff duties, 1/8; A. D. Cunningham, C.B.E., to Air Ministry, 28/7.

Squadron Leaders W. H. Longton, D.F.C., A.F.C., to No. 58 Sqdn., Worthy Down, 15/7; H. K. Thorold, D.S.C., D.F.C., A.F.C., to R.A.F. Base, Gosport, 19/7; A. P. V. Daly, to No. 9 Sqdn., Manston, 1/8; E. J. P. Burling, D.S.C., D.F.C., to H.Q., Coastal Area, supernumerary, 22/7.

Flight Lieutenants A. O. Lewis-Roberts, D.F.C., to No. 15 Sqdn., Martlesham Heath, 15/7; L. G. Maxton and L. J. Chandler, M.B.E., to School of Naval Co-operation, Lee-on-Solent, 15/7; W. M. Smith, to Marine Aircraft Exper. Estab., Felixstowe, 7/8; S. C. Harker and L. M. Hilton, D.F.C., to Marine Aircraft Exper. Estab., Felixstowe, 17/7.

Flying Officers D. M. Rees, M.B.E., to C. & M. Party, Isle of Grain, 1/8; H. Aldridge, to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 26/6; W. E. Cowan, to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 19/6; G. W. Hemming, D.S.C., to Marine Aircraft Exper. Estab., Felixstowe, 7/8; W. A. Thompson, to School of Naval Co-operation, Lee-on-Solent, 15/7; A. G. Thackray, to Marine Aircraft Exper. Estab., Felixstowe, 18/6; O. C. Noel, to R.A.F. Base, Calshot, 18/7; A. S. Godley, to No. 13 Sqdn., Andover, 24/7; H. C. Lee, to No. 17 Sqdn., Hawkinge, 24/7; R. Y. Eccles, to No. 29 Sqdn., Duxford, 21/7; R. S. Barbour, to Arm. and Gunnery School, Eastchurch, 21/7.

Flying Officers.—The following to R.A.F. Depot on appointment to S.S. Commns., 8/7:—P. J. Bett, N. T. Goodwin, D. H. Macdonald-Lawson, P. J. Phelan, H. B. Barrett, S. F. Bell, A. E. Carpenter, D. P. Clayton, W. A. Cooke, J. E. Davies, B. B. Dowling, L. A. Eggesfield, A. C. Evans-Evans, H. R. Gillespie, W. E. Gray, R. C. B. Hendy, J. H. Hunter, M. H. Jenks, N. S. Little, D. J. Lloyd, C. W. Martin, H. Miller, C. H. Morgan, R. W. Steele, W. E. Symonds, A. J. Thompson, C. W. L. Trusk, H. Walker, D. G. Wilson.

Pilot Officers C. J. A. Delany, to R.A.F. Base, Calshot, 18/7; G. A. Cruickshank, to No. 19 Sqdn., Duxford, 5/7, on appointment to a S.S. Comm.; E. A. Leader, to No. 29 Sqdn., Duxford, 5/7, on appointment to a S.S. Comm.

MEDICAL BRANCH.—Flight Lieutenants (Medical) J. G. F. Heal, M.D., D.O.M., & S., to R.A.F. Depot, 26/6, on transfer to Home Estab.; J. A. Quin, M.D., B.A., to R.A.F. Depot (Non-effective Pool), 24/6, on transfer to Home Estab. Flg. Officer (Medical) S. S. Proctor, M.B., to R.A.F. Depot, 14/7.

STORES BRANCH.—Flight Lieutenant (Stores) K. A. Smith, to R.A.F. Depot (Non-effective Pool), 1/7.

The R.A.F. at Spithead.

The Times of July 18 states:—

The arrangements for the aerial display at the Naval Review have been settled. Two squadrons of aircraft will escort

the King out of the harbour, and after the Review is over they will escort His Majesty back to harbour. As the Royal yacht leaves the lines of the Fleet, eight other machines from No. 10 Group Coastal Area, under Group Captain J. L. Forbes, will fly past in single file and salute the King. These machines will also fly down the lines of warships. All the aircraft taking part in these evolutions will be from the Coastal Area.

The A.O.C. Coastal Area.

The Air Ministry announces:—

It is notified for information that Air Vice-Marshal F. R. Scarlett, C.B., D.S.O., will succeed Air Vice-Marshal Sir Vyell Vyvyan, K.C.B., D.S.O., as Air Officer Commanding, Coastal Area, Royal Air Force, from Sept. 1 next.

The R.A.F. in Iraq.

The Morning Post of July 16 gives the following account of a display by the Royal Air Force at Hinaidi.

A Royal Air Force Display was held on June 27 at Hinaidi, the military cantonment about five miles downstream from Baghdad, and took the form of an attack on a hostile village, which was specially erected for the purpose. No. 45 Squadron began by bombing the village, while No. 1 Squadron circled round in flying formation to protect the bombing machines from any possible aerial attack. The first bomb landed in the middle of the village, blowing most of it to pieces and setting fire to the rest. The remainder of the squadron followed, dropping four bombs at a time with deadly accuracy. By this time the "enemy" were supposed to be evacuating the village, and No. 1 Squadron swooped down upon them, harassing their retreat with machine-gun fire.

At the conclusion, as if to round up and capture the remnant, seventeen armoured cars swept across the desert at full speed, firing as they went. The High Commissioner, the Air Vice-Marshal and the Emir Zaid, brother of King Faisal, were present at this display, which effectively showed to what a high pitch of training and efficiency the R.A.F. in this country has been brought.

Cricket.

R.A.F. v. STAFF COLLEGE, CAMBERLEY.—Played at Camberley on July 9, and won by the R.A.F. by 13 runs. This provided a most exciting finish on account of a magnificent last-wicket stand by the Staff College. With nine wickets down, they had 64 runs to make to avert defeat. Batting for over an hour the last wicket produced 51 runs, Capt. Percival contributing 46. The R.A.F. won by 13 runs.

Royal Air Force: Plt. Off. R. E. Bain, c. Capt. Maldon, b. Major Halstead, 2; Flt. Lt. C. G. Wigglesworth, l.b.w., b. Major Halsted, 4; Flg. Off. H. W. Pierce, c. Capt. Turner, b. Major Calthorpe, 28; Sq. Ldr. C. H. B. Blount, c. Capt. Percival, b. Lt.-Col. Adams, 2; Sq. Ldr. W. H. L. O'Neill, b. Major Halsted, 12; Flt. Lt. A. K. Lister-Kaye, b. Major Halsted, 0; Flg. Off. J. J. C. Cocks, b. Major Ramsden, 15; Flt. Lt. E. Thornton, c. Capt. Rich, b. Lt.-Col. Adams, 57; Flt. Lt. E. A. Fawcus, c. Major Maldon, b. Major Halsted, 13; Group Capt. N. Roche, c. Major , b. Col. Adams, 39; Flg. Off. C. D. Adams, not out, 10.

Extras, 17; Total, 199.

Staff College Total, 186.

R.A.F. Auxiliaries.

The Morning Post of July 16 states:—

As soon as Parliamentary powers have been obtained it is proposed to raise two Volunteer Air Squadrons in connection with the defence of London. The 54th City of London Anti-Aircraft Unit is seeking recruits.

[The first sentence presumably refers to the Auxiliary Air Force.—ED.]

A NEW DURATION RECORD.

On July 16 MM. Coupet and Drouhin flying a single-engined Farman biplane (450 h.p. Farman engine) took off from Chartres aerodrome at 05.02 hrs. in an attempt to set up a new Duration Record. They landed at 19.01 on July 17 owing to bad weather, having remained in the air for 37 hours 59 mins. 10 secs.

The previous World's Records for Duration, with and without refuelling during flight, were:—

Without refuelling: 36 hrs. 4 mins. 36 secs., Lieuts. MacReady and Kelly, Fokker T.II (400 h.p. Liberty engine), April 16-17, 1923.

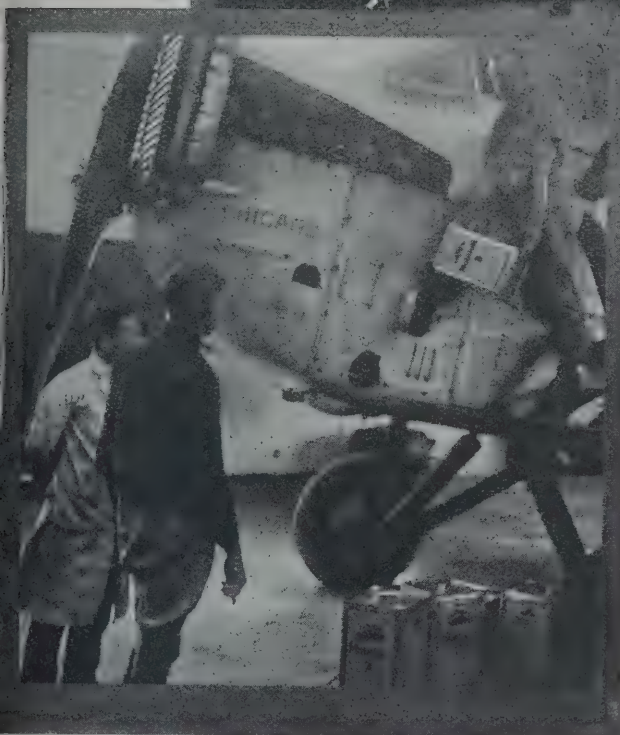
With refuelling: 37 hrs. 15 mins. 14 secs., Lieuts. Lowell H. Smith and Richter, D.H.4b (400 h.p. Liberty engine), Aug. 27-28, 1923.

The machine used by the French pilots was a modification of the same Farman Goliath used by MM. Bossoutrot and Drouhin on Oct. 14-16, 1922, when they established a World's Duration Record of 34 hrs. 14 mins. 7 secs. The modification consisted in taking out the two 260 h.p. Salmon wing engines and building in the single 450 h.p. Farman engine in the nose of the fuselage. The machine took off with 4,200 litres of petrol and 870 litres of oil, sufficient for a flight of 42 hours.

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Its suitability for severe service of this description.

Its uniformity wherever obtained.

Its world-wide distribution.

The successful performance of Gargoyle Mobiloil in this great flight provides one more example of its reliability under all conditions of service.

Throughout this flight Gargoyle Mobiloil "B" will be used, the same in every respect as the Gargoyle Mobiloil "B" on sale everywhere. The same high quality and dependability mark the other grades of Gargoyle Mobiloil.



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MORE AIR MINISTRY ENCOURAGEMENT.

A very curious situation has arisen in connection with the new D.H.51 training and sporting machine which was illustrated in last week's issue of *THE AEROPLANE*. It will be remembered that this machine is fitted with an R.A.F.1A engine which has been specially fitted with dual ignition by the de Havilland firm.

The R.A.F.1A engine, it may be remembered, was one of the products of the bright brains of Farnborough at the beginning of the war, and in its way was an excellent engine although considerably too heavy for the purposes to which it was sought to put it at the time. It did however gain a very fair reputation for reliability during the war despite the fact that it was then used under conditions which involved practically continuous development of full power when it was in use.

By way of still further adding to the reliability of the engine the D.H. firm added to the engine a Remy Coil ignition in addition to the standard single magneto system. In the eyes of the Air Ministry this addition constitutes a modi-

fication of the engine such as to demand an endurance test before it can be accepted as airworthy.

Originally the Air Ministry demanded a ten-hour non-stop run at the standard 9/10 full power on the ground. This obviously could not be given except by fitting up a test bed with a special cooling fan—for the engine, being of the air-cooled type, would certainly have melted down long before ten hours if run in the machine on the ground. The Ministry therefore signified their willingness to accept ten hours' non-stop flight instead.

The D.H.51 is fitted with petrol tanks of 30 gallons capacity—equivalent to about 4 hours' flight. For the required ten hours a total of something like 75 gallons of fuel and oil would have to be carried. The cost of fitting the machine with the necessary tanks and of making the required test would amount to at least £100 and the firm do not feel justified in incurring this expenditure.

The extra ignition system has therefore been removed and the machine has thereby automatically become airworthy.

A NEW WIND TUNNEL.

Whatever one may happen to think of wind tunnels and their habits it is undoubtedly the fact that to-day aeroplane designing depends ultimately on the result of wind-tunnel tests and that the aeroplane designer in practice continually finds himself confronted with problems which he could tackle with a little more complacency if he could get a special tunnel test made. During the war when expense was no object a number of aircraft-designing firms put up their own wind tunnels in order to allow their designers to make tests bearing on specific design problems, but then, as now, the majority of designers had to rely on the N.P.L. for all tests and owing to the great pressure on this and other similar institutions only urgently important work could be carried out, and minor questions of aerodynamic design had frequently to be settled by more or less enlightened guess-work.

Since the war the N.P.L. and the R.A.E. have on the whole served the aircraft designer very well in regard to the making of tests, for specific ends, but naturally their charges for such work are not negligible, nor can it always be guaranteed that individual tests made for private interests shall be completed with the celerity which the designer usually desires.

Obviously the private wind tunnel is the correct solution of this difficulty as the designer who keeps such an appliance on the premises can make his own specific tests as and when he wants them.

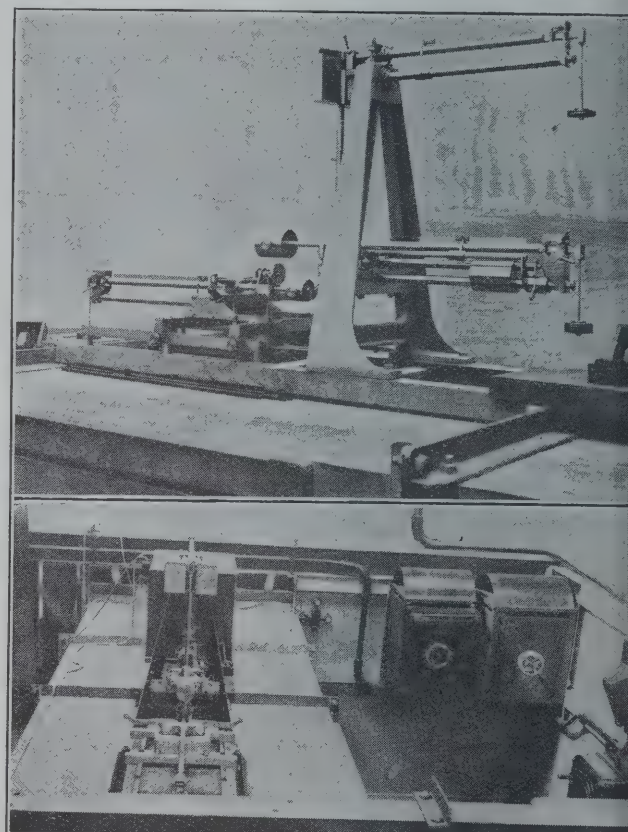
Unfortunately a wind tunnel is by no means a cheap toy and between the end of the war and the beginning of this year there appears to have been no addition to the number of aircraft constructors who own a private wind tunnel.

It is therefore perhaps to be regarded as a sign of the times that the Westland Aircraft Works have considered that the necessary outlay could be justified and they have recently installed a new tunnel at their works at Yeovil.

This tunnel, which is generally of the N.P.L. type has a working section four feet square and is capable of working at air speeds of up to 75 ft. p.s. The most interesting feature of this installation is the fact that not only the tunnel structure, but the whole instrumental equipment of balances and so forth was designed and built by the Westland staff at Yeovil, with the sole exception of the standard weights used on the balances and of some glasswork such as that used in the manometers.

By way of a check on the reliability of the installation a standard aerofoil model was borrowed from the N.P.L. and

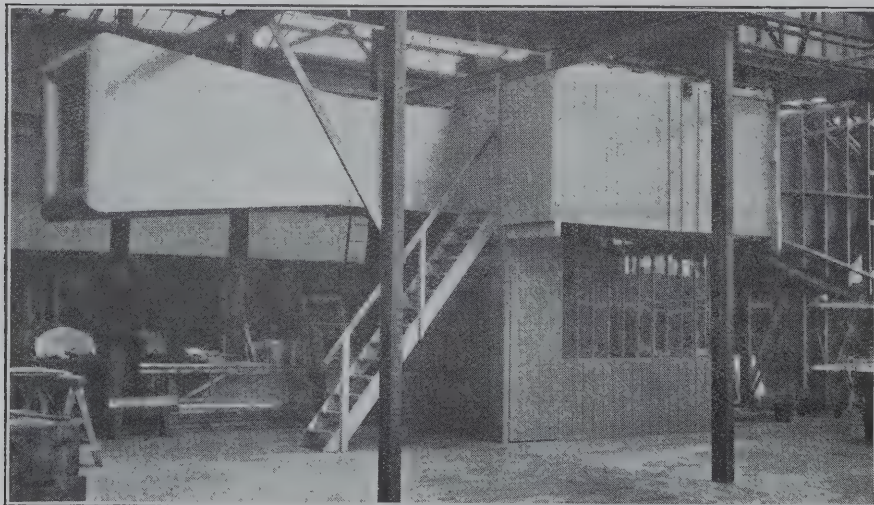
was tested in the Westland tunnel. The properties of this model as determined by the N.P.L. were quite unknown to the operator, but tests over the whole range of lift, drag and centre of pressure coefficients were found to give results in very close agreement with the N.P.L. figure.



THE WESTLAND WIND TUNNEL.

At the bottom of the page is shown the exterior of the new Wind Tunnel recently installed at the Westland Aircraft Works at Yeovil. The working part of the tunnel is in the centre, the fan which produces the draught being just outside the boundary of the photograph on the right. Below the channel is the observer's office and the staircase leading up to the working platform giving access to the roof balances.

The photographs above show the roof balances, the upper one being a close-up view of the balance proper which is seen in end view in the left of the lower photograph with alongside it the motor regulating gear for controlling the wind speed.



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South Atlantic Flight.

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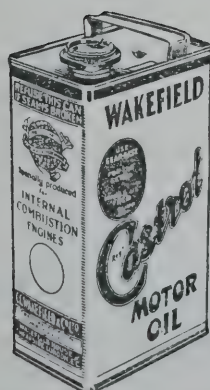
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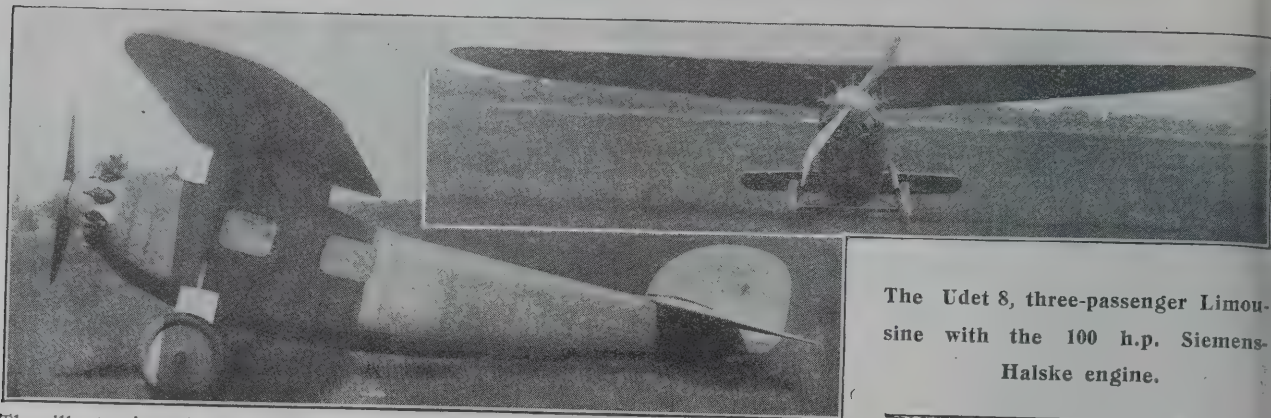
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NEW UDET MACHINES.



The Udet 8, three-passenger Limousine with the 100 h.p. Siemens-Halske engine.

The illustrations here given show two recent products of the Udet Flugzeugbau, of München, which appears to have become one of the most active and enterprising of German aircraft manufacturers.

One of them—a light aeroplane known as the Udet Colibri—is particularly interesting as being equipped with a Douglas motor-cycle engine of 500 c.c. with which it has made a number of excellent flights. The machine is a simple cantilever monoplane of the parasol type, but unfortunately no particulars of dimensions, weights or performance are available.

The other is a light commercial passenger-carrier fitted with the nine-cylinder 100 h.p. Siemens Halske radial engine which is now in service on the Aero-Lloyd Bremen-Hanover service. The machine closely resembles the earlier Udet Limousine with the seven-cylinder engine of the same make, but carries pilot and three passengers.

The fuselage is of a deep oval section and the parasol wing is supported above it by a pair of uprights built onto each side of the fuselage which extend across the wing from spar to spar. The pilot is seated in an open cockpit ahead of these two uprights. Behind is the passenger space. Entrance is by a side door on the port side. Behind the cabin a luggage room is provided.

The wing, which is in one piece and markedly tapered in

plan form, is supported only at the two "centre section" uprights which do not appear to have any centre-section bracing. The mean aspect ratio of this wing is 8, which taken in conjunction with the general cleanness of the design, should make for very high aerodynamic efficiency. The wing is of the usual two-spar construction, fabric-covered, with three-ply reinforcement on the leading edge.

Unfortunately no particulars as to either the total weight or the actual load carried is available and it is therefore difficult to estimate how this particular machine compares with others in commercial effect. It is credited with a speed of 87 m.p.h. If this is actually attained with three passengers of normal weight—say 450 lbs. of useful load, or 4.5 lbs. h.p.—the machine compares very well indeed with existing British passenger-carriers of considerably larger size, and indicates the possibility of using relatively small low-powered machines of this type for services where the density of traffic does not justify the use of eight-seaters, and greatly increasing the popularity of existing air lines by running a frequent service of small machines instead of an infrequent service of large ones.

The use of three or four seaters of low-power such as this is a subject which the Directors of Imperial Airways might well consider when the question of developing new service comes to be considered.



SPECIFICATION OF UDET 8 LIMOUSINE.

Span 12.0 m. (39 ft. 5 in.)
Length ... 7.12 m. (23 ft. 4 in.)
Height ... 2.67 m. (8 ft. 10 in.)
Wing area 18 m².
(194 sq. ft.)
Speed ... 140 km.h. (87 m.p.h.)

The Udet Colibri with 500 c.c. Douglas engine.

A DAIMLER LIGHT AEROPLANE.

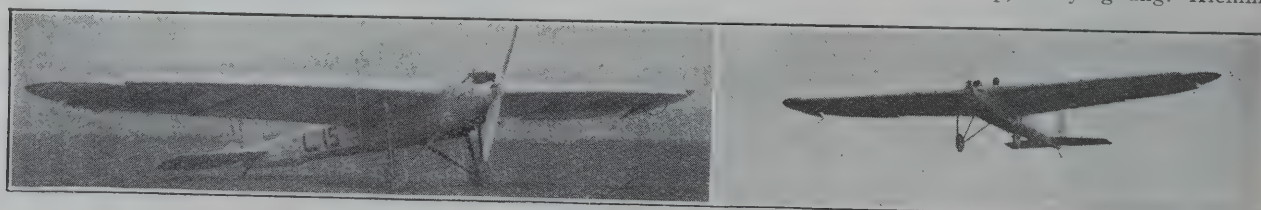
The light aeroplane illustrated on this page is known as the Daimler L.15 and is one believes the first aeroplane produced at the Daimler Aircraft Works at Sindelfingen since the end of the war. Although the machine as here illustrated is new, it has quite a long history behind it.

In 1918 Ing. Klemm had some gliding tests made on a Daimler L.11 single-seater, and found it was possible to keep this machine in the air in a strong wind under favourable conditions. It is interesting to know that the pilot in these tests was Eugen von Loessl who was killed at the 1920 Rhön gliding meeting. As a result of these trials Ing. Klemm in 1919 designed and built the L.15—apparently as a glider.

The machine was not at once satisfactory and was damaged in trials, and when the aircraft department of the Daimler firm ceased work in 1919 the machine was put away.

At the end of 1922 Ing. Schrenk rescued the machine from oblivion and rebuilt it. A number of successful gliding tests were made with it in the summer of 1923 on the Schwaebischen Alp, glides of up to 13 min. and to a distance of 4 km. being made.

A second-hand 7/9 h.p. motor-cycle engine, developing about 12 h.p. was then fitted to the machine and it was flown as an aeroplane for the first time on Nov. 30, 1923, from Sindelfingen to Untertürkheim and back. On Dec. 29 Ing. Schrenk flew the same trip, carrying Ing. Klemm as



The Daimler L.15 Light Aeroplane.



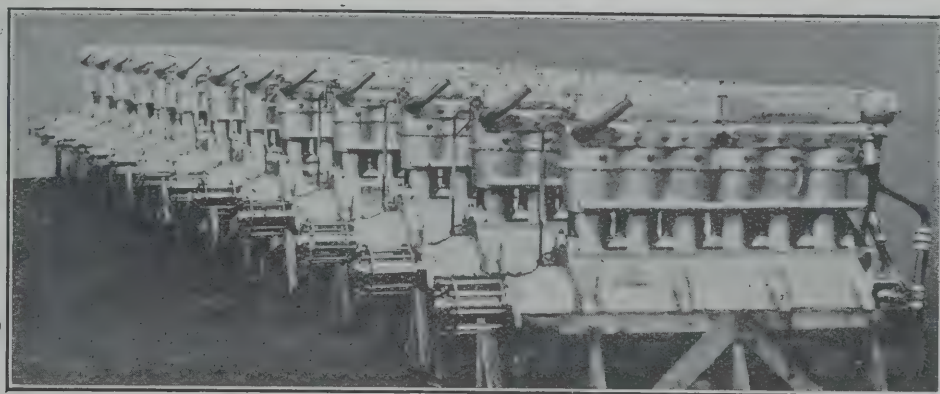
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The Copenhagen-Rotterdam Air Line.

The Royal Swedish Mail Air Line (commencing 21st June).

The K.L.M. (Holland).

The De Havilland Aircraft Hire Service.

The Liverpool to Belfast Royal Mail Air Line.

The Seville-Larache Air Line (Spain).

In addition several British and Continental Aircraft Constructors are designing machines of new types to be fitted with 240 h.p. Siddeley Puma Engines.

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The Daimler L.15 fitted with a "low wing."

a passenger. The flight took 30 minutes and the height attained was 850 m. (2,800 ft.). Altogether the machine has made over 50 flights as an aeroplane including one of 120 km. (75 miles) with a passenger.

The fuselage of this machine is fitted with detachable and interchangeable noses which fit on just ahead of the leading edge of the wing. The glider nose is somewhat longer than that carrying the engine and has a pilot's cockpit well forward. A second cockpit between the wing spars is used when the engine nose is in place. Exactly where the passenger is carried when flying with an engine is not clear.

The machine is a normal high wing monoplane with a wide track undercarriage supported from the wing and the fuselage. Springing gear is fitted inside the wing itself. The landing wheels are devoid of rubber tyres and appear to be built up of three-ply.

The engine appears to be of the Mabeco type and apparently drives the airscrew direct. The machine has a top speed of 75 k.m.h. (47 m.p.h.) lands at 30 k.m.h. (19 m.p.h.) and



The Daimler L.15 as a glider.

climbs 1 metre per sec. (200 ft. per min.). About 50 yards are taken to get off.

The only unusual aerodynamic feature seems to be the pivoted wing tips serving for lateral control instead of the usual ailerons.

Another version of the machine which is fitted with wing at the bottom of the fuselage and short bracing struts down from the top of the fuselage is shown in a photograph.

No figures as to dimensions and weight are available for either version of the L.15.

New Technical Literature.

Aeronautical Research Committee:—

R. & M. No. 888.—Test on a large aerofoil of R.A.F. 15 Section. By L. F. G. Simmons and E. Ower. Price 6d. net.

R. & M. No. 897.—The Lift and Drag of a Standard Bristol Fighter Aeroplane. By the Aerodynamics Staff, R.A.F. Price 4d. net.

R. & M. No. 898.—An experimental Test of the Prandtl Correction for Tunnel Wall Interference. By W. L. Cowley and L. S. Jones. Price 3d. net.

R. & M. No. 901.—Theoretical Relationships for a Biplane. By H. Glauert. Price 9d. net.

Meteorological Office Professional Notes.—Vol. 3, No. 34. How to observe the wind by Shooting Spheres Upwards. By L. F. Richardson. Price 9d. net.

The Journal of the Royal Aeronautical Society.—No. 162, Vol. XXVIII, June, 1924. Contents: Notices, Paper by C. P. Burgess, J. C. Hansaker and S. Truscott on The Strength of Rigid Airships. Price to non-members 2s. 6d.

United States National Advisory Committee for Aeronautics:—

Report No. 177.—The Effect of Slipstream Obstructions on Air Propellers. By E. P. Lesley and B. M. Woods.

Report No. 182.—Aerodynamic Characteristics of Aerofoils III.

Report No. 183.—The Analysis of Free Flight Propeller Tests and its application to design. By M. M. Munk.

Report No. 184.—The Aerodynamic Forces on Airship Hulls. By M. M. Munk.

Appendix to Administrative Report, 1923.—Relation between Aeronautic Research and Aircraft Design. By J. S. Ames.

Technical Note No. 180.—Increasing the Compression Pressure in an engine by using a long intake pipe. By R. Matthews and A. W. Gardener.

Technical Note No. 181.—Interference of Multiplane Wings having Elliptical Lift Distribution. By H. Von Sanden. (From Technische Berichte.)

Technical Note No. 182.—Induced Drag of Multiplanes. By L. Prandtl. (From Technische Berichte.)

Technical Note No. 183.—Static Stability of Seaplane Floats and Hulls. By W. S. Diehl.

Technical Note No. 184.—Note on Vortices and their Relation to the lift of Aerofoils. By M. M. Munk.

Technical Note No. 185.—The Influence of Inlet Air Temperature and Jacket Water Temperature on Initiating Combustion in a high-speed Compression-Ignition Engine. By R. Matthews and A. W. Gardiner.

Technical Note No. 186.—Testing Aeroplane Fabrics. By A. Pröhl. (From Technische Berichte.)

Technical Note No. 187.—The Induction Factor used for computing the Rolling Moment Due to the Ailerons. By M. M. Munk.

Technical Note No. 188.—Longitudinal Oscillation of an Airplane. Part I. Problem and Method. By R. Fuchs and L. Hopf. (From Technische Berichte.)

Technical Note No. 189.—Torsional Strength of Nickel Steel and Duralumin Tubing as affected by the ratio of Diameter to Thickness. By N. S. Oxeby.

Technical Note No. 190.—Comparing the Performance of Geometrically Similar Airplanes. By M. M. Munk and E. P. Warner.

Technical Note No. 191.—The Effect of Wind Tunnel Turbulence upon the forces measured on Models. By W. L. Le Page and J. T. Nichols.

Technical Note No. 192.—Note on the pressure distribution over the hull of elongated Airships with circular cross-section. By M. M. Munk.

Parachutes.

The following brief particulars of recent accidents in America, wherein parachutes have been instrumental in saving life, may be interesting in augmenting the leading article of THE AEROPLANE recently.

On June 19 Lieut. V. A. Macready, A.S., was flying a D.H. at night from Columbus to McCook Field. When over Dayton his engine stopped and after he had determined that his "ship" was "dead" his first thought was to land where no lives would be endangered. He headed for the outskirts of Dayton finding his position by the city lights and at a height of 3,000 feet he made all preparations to leave the machine. He jumped successfully and after he landed he was followed down by the D.H., which on hitting the ground burst into flames.

Although Lieut. Macready saved his life, it seems a tough policy of leaving an aeroplane during a night flight just because his engine had stopped over a city is a very risky procedure.

Owing to darkness it could not be determined whether he was still flying over a populated area, and to leave a D.H. to fall where it likes is analogous to a captain leaving his ship in fog in case it might hit some rocks.

Another case wherein the parachute fully justified itself occurred at Dayton on June 13. Walter Lees, test pilot of the Johnson Airplane and Supply Co., was testing a machine which had been reconditioned by his firm for a private customer. In gliding down to land, the fire extinguisher jarred loose and fell into the controls, which it jammed. Unable to kick the device loose Lees jumped at a height of 150 feet and the parachute, of standard U.S. Army pattern opened just before he hit the ground. The shock of the abrupt opening broke the force of the fall and the pilot was uninjured.

Records show that Lees was the fifth aviator in the United States to escape death by use of a parachute and that he is the first civil aviator to survive such an accident in this manner.

Similarly in Texas two aeroplanes collided while flying in formation and one of the pilots was saved by his parachute, the other pilot having apparently been stunned by the impact of the two aircraft.

Seed-sowing from the Air.

The Daily Telegraph of July 12 states:—

One of the latest commercial uses of the aeroplane, which may possibly be perfected to revolutionise certain phases of agriculture, is that of sowing seed. This, says Reuter's Miami (Florida) correspondent was successfully demonstrated in the suburban territory of Miami recently, where 640 acres of land were sown with grass seed within a period of twenty minutes. To sow the area covered during the experiment, it was said, it would take two men sowing by hand thirty days.

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 28; Tuesday, 26; Wednesday, 36; Thursday, 28; Friday, 30; Saturday, 31; Sunday, 20.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Amsterdam—Berlin: Machines 119, passengers 601, freight 34 tons.

AIR UNION:

Paris—London: Machines 51, passengers 305, freight 9 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 14, passengers 65.

AERO-LOYD:

Berlin—London: Machines 7, passengers 16.

UNITED STATES ARMY:

3 Douglas Cruisers arrived from Seattle via India Wednesday. Left for Seattle via Brough Thursday.

FARMAN COMPANY:

Machines 2, passengers 4.

Total number of trips by British machines: 119, carrying 601 pas.

Foreign machines: 80, carrying 390 passengers.

Comparative Figures:

For week ending July 20:

Machines, 199; Passengers, 991; Crews, 250; Total personnel, 1,241.

Corresponding week, 1923:

Machines, 121; Passengers, 604; Crews, 194; Total personnel, 798.

Corresponding week, 1922:

Machines, 152; Passengers, 411; Crews, 256; Total personnel, 667.

Corresponding week, 1921:

Machines, 115; Passengers, 430; Crews, 137; Total personnel, 567.

Corresponding week, 1920:

Machines, 106; Passengers, 219; Crews, 137; Total personnel, 356.

Croydon Notes.

On Monday of last week 28 machines carried 130 passengers, on Tuesday 26 machines carried 121 passengers, on Wednesday 36 machines carried 105 passengers, on Thursday 28 machines carried 135 passengers, on Friday 30 machines carried 170 passengers, on Saturday 32 machines carried 168 passengers, on Sunday 20 machines carried 112 passengers.

Of these 119 of the machines of Imperial Airways Ltd. carried 601 passengers. In addition 43 tons of freight was carried of which Imperial Airways Ltd. carried 34 tons.

Such is the record of the Air Lines for the past week. 199 machines carrying 991 passengers and 43 tons of goods. The figures speak for themselves.

Some weeks ago THE AEROPLANE stated that Imperial Airways Ltd. would shortly obtain two D.H.50s. One believes that at the time the statement was made neither the management of Imperial Airways Ltd. nor the De Havilland Aircraft Co. Ltd., were aware of the future addition to the air fleet but intelligent anticipation has always been one of the most moving features of THE AEROPLANE.

Owing to the imbecile conditions of the Treaty of Versailles Germany is forbidden to build machines over a certain size, with the result that she very rightly has forbidden such oversize machines to fly over Germany. The D.H.34 being such an outsize is now forbidden to fly over unoccupied Germany and so as the 50 just fits it is being utilised in the 34's stead.

The arrival of the American World-flying team at Croydon is dealt with elsewhere.

Mr. Perry is busy at the Aircraft Disposal Company's side of the aerodrome testing Snipe, Bristols, Martinsydes and D.H.9s.

The Civil Aviation Advisory Board.

A letter has been received by the Royal Aero Club from the Air Ministry expressing its thanks to the Club for the valuable assistance rendered by its representative, General Sir Capel Holden on the Civil Aviation Advisory Board.

The R.Ae.C. Racing Fund.

A donation of £100 from Mr. A. S. Butler has been received by the Royal Aero Club. A unanimous vote of thanks was passed to Mr. Butler for his generous support to Air Racing.

A subscription list for the fund has been opened to which a few other members have contributed their mite. It is hoped that others will follow suit.

Light Aeroplane Clubs.

A letter has been received by the Royal Aero Club from the Air Ministry asking the Club to nominate two representatives on the Committee to be appointed to work out the details in connection with the formation of Light Aeroplane Clubs. Lieut.-Col. M. O. Darby and Lieut.-Commander H. E. Perrin were appointed.

Foreign Trade in French Aircraft.

The value of orders for aircraft, aero engines and accessories placed in France by various foreign powers during 1923 was 92 million francs.

These orders were placed by the following countries: Argentina, Belgium, Brazil, Bulgaria, China, Denmark, Estonia, Spain, Finland, Greece, Holland, Italy, Japan, Persia, Poland, Portugal, Roumania, Russia, Yugo-Slavia, Siam, Sweden and Czechoslovakia.

The aircraft actually exported during 1923 were valued at 26 million francs, and it would appear that the figure for 1924 will greatly exceed this.

Among some of the bigger orders may be quoted the following:—

120 Potez XV A.2 two-seater reconnaissance biplanes (400 h.p. Lorraine-Dietrich engines) for Roumania together with a number of spare engines.

100 Breguet XIX and 100 Dewoitine D.1.C.1. monoplanes and seven C.A.M.S. 30E school flying boats for Yugo-Slavia.

A number of Nieuport-Delage 29.C.1 single-seater scouts for the Swedish Army.

8 Potez XV's for the Danish Army etc.

The French firm of Henry Potez are just beginning delivery of a series of 300 Potez XV two-seater reconnaissance biplanes built to the order of the Polish Military Air Force.

This firm has also supplied numbers of this type of machine to Spain, Denmark and Roumania.

PERSONAL NOTICES.

DEATHS.

TOOKE.—On July 11, at the R.A.F. Combined Hospital, Basrah Iraq, after a short illness, Flt. Lt. Benjamin Cecil Tooke, R.A.F., dearly-loved husband of Marjorie Tooke, in his 32nd year.

MARRIAGES.

MONTGOMERY—DARRAGH.—On July 9, at Duncairn Presbyterian Church, Belfast, Sq. Ldr. T. Montgomery, R.A.F., M.S., youngest son of the late Samuel Montgomery and of Mrs. Montgomery, of Parkhall, Antrim, to Mary, only daughter of Mr. Robert Darragh, J.P., and of the late Mrs. Darragh, of 3, Eaton Gardens, Cliftonville Belfast.

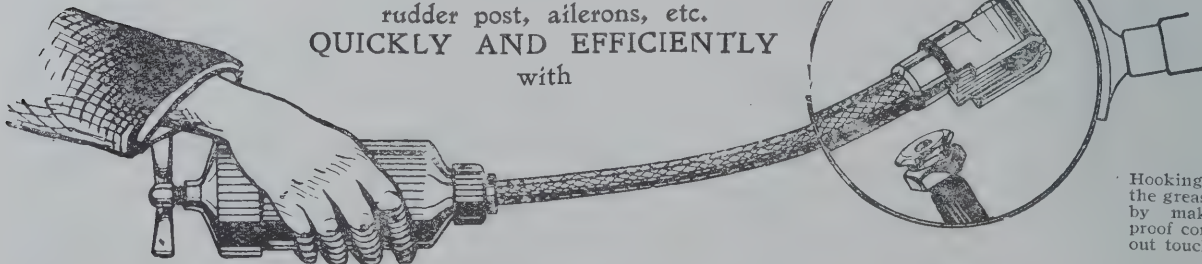
FORTHCOMING MARRIAGES.

BLANFORD—NATHAN.—The marriage arranged between John Stephen Blanford, D.F.C., eldest son of Mr. and Mrs. Ernest Blanford of Watford, Herts, and Maude d'Avigdor, elder daughter of George E. Nathan, O.B.E., and Mrs. Nathan, of Tientsin, will take place on August 16 at H.B.M.'s Consulate-General, Tientsin, North China.

TWIST—CURREY.—A marriage has been arranged between Lieut. Col. Ernest Twist, 13th/18th Hussars, eldest son of Frederick Twist of Dalecote, Coventry, and Kathleen, only daughter of Flt. Lt. E. F. N. Currey, R.A.F., M.S., and Mrs. E. F. N. Currey, of 9, Knightsbridge, London, and late of The Mall House, Lismore, County Waterford, Ireland.

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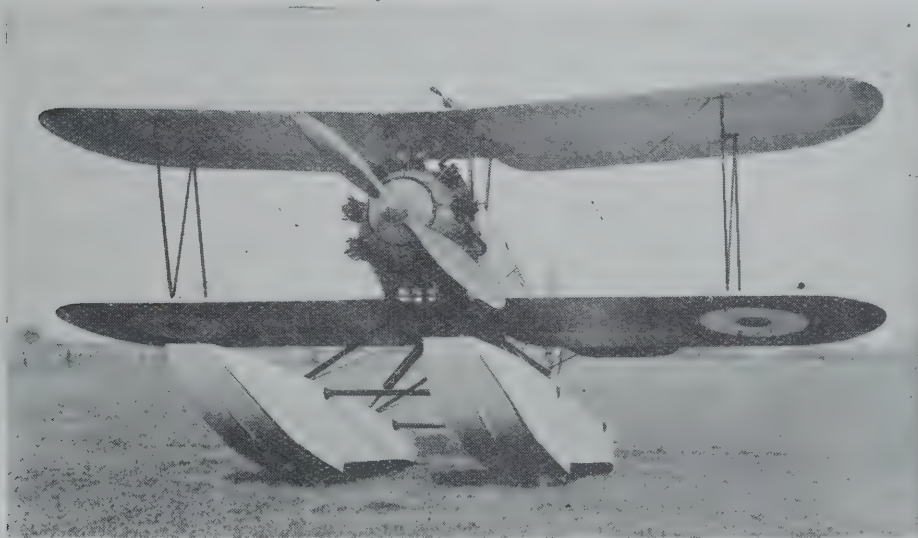
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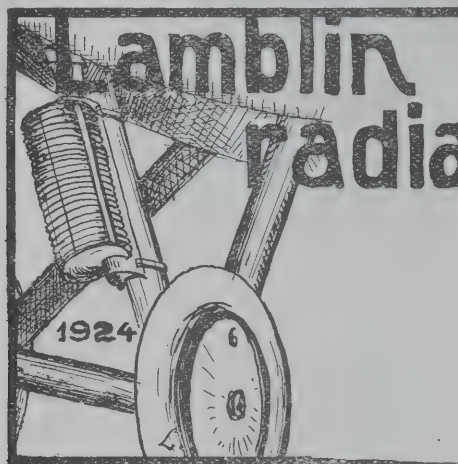
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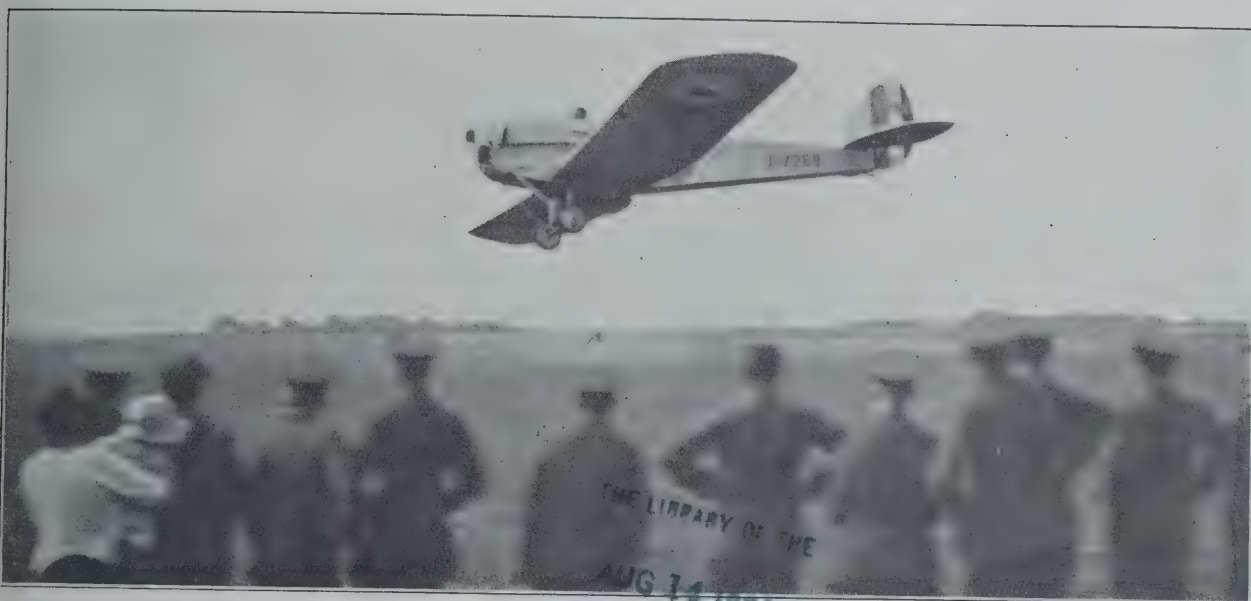
INCORPORATING AERONAUTICAL ENGINEERING

Edited by
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Vol. XXVII. No. 5. SIXPENCE WEEKLY.

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ON THE TURNING WORM.

One of those quaint people who misquote on every possible occasion mangled and mingled two proverbs some time ago and produced the aphorism "It's a long worm that has no turning." In this year when some five million pounds are being spent on new aircraft for the R.A.F. the British Aircraft Industry may perhaps object to being regarded even metaphorically as a worm, but judging by the way in which the Air Ministry experts are treading upon the Industry's best designers it would seem that some of those officials still regard our great Industry as being the poor helpless thing that it was during the War 1914-18 when we were all trampled under the hoof of the Defence of the Realm Act more commonly known as D.O.R.A.

Therefore it seems well to hint as obtrusively as possible to those experts that the thing which they still regard as a worm is in fact growing into a rather healthy dragon which if it has not as yet turned and devoured them seems to be just on the point of doing so. And incidentally one may recall the fact that in old English the word worm does in fact serve either for a dragon or for the lesser reptile, insect, or whatnot.

Before proceeding further with this argument one would like to make it perfectly clear that when one refers generically to Air Ministry experts, or to the officials of the Technical Department, who are responsible for the regrettable state of the equipment of the R.A.F., one does not refer to the many excellent officers at the Air Ministry in Kingsway who are doing their utmost to equip the Royal Air Force with aircraft and armament worthy of our First Line of Defence. In fact one excludes from criticism those hard-working officers in Kingsway who operate directly under the Air Member for Supply and Research and under the Director of Technical Development and in the Directorate of Scientific Research and under the Deputy Director of Aeronautical Inspection and under the Director of Equipment. These officials are in fact doing valuable work and in the main spend a large proportion of their time in defeating the efforts of the experts.

The people who are really doing the harm are that curious collection of self-esteeming and self-appointed experts who were at one time stationed in Kingsway but have since been moved to the Royal Aircraft Establishment at Farnborough. There apparently they are acquiring the manners and customs of the old Royal Aircraft Factory which came so near ruining the Royal Flying Corps in 1915-16 and cost us so many valuable lives.

AN HISTORICAL REMINISCENCE.

For the benefit of the younger generation in the Royal Air Force and in the British Aircraft Industry whose memories do not carry them back ten or twelve years to the infancy of the Aircraft Industry it is well to recall that the Royal Aircraft Factory of that period deliberately laid itself out to become a vast Government dockyard in which all the aircraft of the Army would be designed and in which the bulk of the Army's aircraft would be built in time of peace. The only use the officials had for the Aircraft Industry was the intention that in time of war certain good obedient firms should receive orders for aeroplanes which they would build to drawings supplied by the Royal Aircraft Factory, at that time known as the R.A.F.

Those in charge of Military Aeronautics at the War Office, the chief of whom was the late General Sir David Henderson, adopted the policy (which is in itself sound) that the equipment of the R.F.C. should be standardised in the same way that the guns of the artillery and the rifles and machine-guns of the infantry were standardised. But being soldiers and not engineers they did not realise that aircraft design was so young that they were at least twenty-five years too early to standardise aircraft equipment.

The result was that at the end of 1915 and the beginning of 1916 the R.F.C. in France was equipped with a series of aeroplanes designed by the R.A.F. the chief of which were the B.E.2c, the R.E.8 and the F.E.2b, which though completely standardised from a manufacturing point of view were so badly designed aerodynamically that they were shot

down in heaps by the German aviators and were so badly designed mechanically that any given aircraft constructor could in a given time only build of these machines about one-third of the number which he could have built in the same time of a machine properly designed by a competent engineer.

SALVATION BY THE NAVY.

What actually saved the situation was that the Royal Naval Air Service, which had been bitterly hostile to the Royal Aircraft Factory from the very start, had encouraged a few of the early aircraft firms to design better and better aeroplanes out of their own inner consciousness. The result was that when the R.F.C. had been reduced almost to the breaking point the Navy were able to give it machines which were capable of fighting German machines and were also able to send a number of squadrons of fighting machines manned by R.N.A.S. pilots to the help of the almost demoralised R.F.C.

The curious thing is that the R.N.A.S. were able to supply these machines and squadrons because the Royal Navy as such was too stupid to use aircraft for naval work, with the result that the Air Department at the Admiralty under Commodore Murray Sueter were forced to carry on a private land war of their own in Flanders in order to justify their existence. It was owing to these land squadrons and their reserves in England that it was possible to save the R.F.C.

THE EARLIER EXPERTS.

Now the position at that time is very much what the position is becoming to-day, or what it will become unless the practical people in Kingsway assisted by such political influence as can be directed by the Aircraft Industry can break all these little experts.

The Royal Aircraft Factory was full of the products of technical schools and the minor Universities, those curious self-opinionated pseudo-scientific operators of slide rules and tables of logarithms and so forth, people to whom one referred at the time as being of the type with whom the common or conversational "h" and not the mathematical "x" was the unknown quantity.

Colonel Seely who had aforetime been Secretary of State for War, and who may now be regarded as the Father of the Royal Aircraft Factory, had referred to these people before the War as being a collection of the best brains in the country. On the strength of that magniloquent dictum and on the strength of their official positions they presumed to dictate on technical subjects to the trained and experienced engineers who composed such Aircraft Industry as then existed.

HELP FROM THE SERVICE.

As the R.F.C. grew in size and as more and more of our machines were shot down by the Germans there grew inside the R.F.C. itself a class of officer, a fighting man with real mechanical knowledge, who was determined that somehow or another the R.F.C. should be properly equipped. Many of these officers risked their commissions and their reputations by corresponding with political people at home and feeding the agitation—the centre of which one may say was the office of THE AEROPLANE—with information which ultimately broke the Royal Aircraft Factory and its experts and enabled the practical men of the R.F.C. to establish the policy that in future the department responsible for the equipment of the Royal Flying Corps should deal direct with the various aircraft designers and should select for standardisation the best machines turned out by the British Aircraft Industry.

Those responsible for the welfare of the Royal Air Force have persisted in that policy ever since. But beneath the surface these curious little pseudo-scientists have been subtly increasing their influence for the past few years, in fact ever since the re-equipment of the R.A.F. has begun.

One cannot blame them as individuals for naturally every man's ambition is to increase his own importance, and even those without ambition are at any rate moved by the instinct of self-preservation to magnify their own importance in order to hold down their jobs. But in the interests of our First Line of Defence and of the officers and men whose lives de-

pend on the efficiency of our fighting aircraft it is just as necessary now to break these experts as it was to break them in 1916.

One did one's best to break them before the beginning of the War 1914-18, but unfortunately some hundreds of good lives had to be wasted before it was possible to convince the Military authorities that they had to be broken. It is to be hoped that those who are now in authority at the Air Ministry, having had the bitter experience of four years pretty strenuous war-making and some six years of devastating peace since then, will see the advisability of themselves breaking the power of these experts before they reduce the equipment of the R.A.F., in comparison with the equipment of other nations, to the impotent position which the R.F.C. occupied in relation to the German Air Force at the end of 1915.

OUR REARWARD POSITION.

Several weeks ago figures were published in *THE AEROPLANE* showing that the best of our modern pursuit machines, aeroplanes so modern in fact that only one squadron of the R.A.F. is as yet equipped with them, are anything between twenty and fifty miles an hour slower than the pursuit machines of the American, French and Dutch Military Aviation Services. It was even pointed out that the best of our single-seaters is some ten miles an hour slower than the best two or three of the two-seater fighters belonging to other nations. It is obvious to any intelligent person that the position should be entirely reversed and that our single-seaters should be twenty or thirty miles an hour faster than the best of any other nation and that our two-seater fighters should be as fast as the best single-seaters of any other nation.

It is quite possible for us to produce such machines if only the British Aircraft Industry is given a free hand by the Air Ministry. But so long as the Air Ministry allows these little experts at Farnborough to meddle with design we shall never get what we want and what we ought to have.

THE ROOT OF THE TROUBLE.

It is impossible for a designer in the Aircraft Industry to produce a clean and efficient design so long as every minor official from Farnborough is allowed to run wild in the constructor's design office and insist on his particular specialities being fitted precisely how he likes them to be fitted.

Admittedly much of the trouble is due rather to the system than to the individual, in that there is no chief authority to co-ordinate the work of the various sub-departments. Therefore each little specialist is only concerned with the effectiveness of the particular gadget with which he is concerned and is not in the least interested in the efficiency of the aeroplane as a whole.

For example, one of the worst components in all our British aircraft is the radiator. There is hardly a machine with a water-cooled engine among our most modern aeroplanes which could not have its speed increased anything between ten and twenty-five miles an hour by fitting efficient radiators. But the radiator section under the Air Ministry at Farnborough is not concerned with increasing the speed of the machines it is only concerned with preventing the engines from boiling. So long as the engines do not boil that section is not interested in knowing whether the machine flies or whether it does not. It is much more concerned with keeping the temperature of the engine below 212 degrees Fahrenheit than with getting the complete aeroplane up to 30,000 feet. The result is that although the temperature is kept down the ceiling of the machine is kept down to a still greater degree.

In a similar way the machine-gun department is concerned with putting the guns where they can fire best and with putting the ammunition where the user of the gun can get at it and so forth and so on. It is not in the least concerned with putting the guns where they will not knock five or ten miles an hour off the speed of the machine. If the designer of the machine suggested that the gun itself might be modified in order to make it fit into the machine better the whole of the gun department would probably blow up in flames.

One merely mentions these as two examples of the kind of thing which spoils the performance of our aeroplanes as compared with those of foreign nations, in which the design and efficiency of the aeroplanes comes first and into which the various warlike gadgets have to be fitted afterwards and have to be modified to fit if they do not go in quietly in their original shape.

THE WEIGHT QUESTION.

Quite apart from the redesigning of all these component parts and fittings to increase the speed of the machine there is the fact that nearly all our war machines are badly overloaded because so many gadgets and fittings are inflicted upon them and because nearly all these gadgets and fittings are very much heavier than they need be.

Only the other day one saw an electric-light switch designed by the experts at Farnborough to operate wing-tip lights and so forth. This switch was a most complicated arrangement. It cannot have weighed much less than a quarter of a pound, and it probably weighed more, and it must have cost 25/- or so to make. A perfectly efficient switch to do precisely the same job weighing about an ounce and costing precisely ninepence can be bought in any motor garage.

That is one of the most perfect examples of the evils of allowing these experts to play with things which they do not understand. Merely take that example of the switch and multiply it up in practically everything on our modern aeroplanes, in machine guns, in compasses, in all the instruments with which a machine is crowded, in the bomb gear, in the deck landing gear and everything else and you soon arrive at hundreds of pounds of entirely unnecessary weight and money crowded onto the unfortunate aeroplane.

And we shall never get the proper equipment of accessories on our aeroplanes until the aeroplane designer himself is permitted to say whether such-and-such an accessory is fit to go on his machine or is not.

THE ADMIRALTY HANDICAP.

In these days when the Air Council is very rightly concentrating so much of its attention on satisfying the demands of the Fleet Air Arm (which are quite different from the needs of the Fleet Air Arm) so that the Admiralty shall have no excuse for complaining to the Committee of Imperial Defence that the Navy is being neglected by the Air Ministry a great deal of trouble is made for the aircraft constructors by the Air Department at the Admiralty.

People in the Navy who have had little or nothing to do with aeroplanes demand that machines which are to be handled on board ship must be equipped with this that or the other gadget, and that naval officers who are acting as observers must be accommodated in such-and-such a manner in the machines. And they demand that fleet spotters shall carry a crew of four to do work which could be equally well done by a crew of two on an ordinary Army reconnaissance machine—seeing that there is very much less to observe at sea than there is over a field of battle.

All these Admiralty requirements are also adding to the weight of machines, making them unhandy and decreasing their efficiency. This policy is a matter which deserves the attention of the technical powers at Kingsway but one regards it as being quite a minor matter compared with the importance of breaking all these little experts at Farnborough and preventing the Royal Aircraft Establishment from achieving its reborn ambition to become firstly the authority which shall control aircraft design in this country and secondly to become the great aerial dockyard from which a humble and contrite Aircraft Industry shall receive doles in the shape of orders for the reproduction of R.A.F. designs.

THE EFFECT OF THE IRRITANT.

If the British Aircraft Industry is content to take lying down the trampling which it is already receiving from these experts at Farnborough it will deserve to sink to the position which they desire. One can only hope that their present action will irritate the worm till it turns.

Which recalls the classic story of the newly-arrived Irish servant girl who after occupying the room vacated by a somewhat uncleanly predecessor and not wishing that her new mistress should consider her unduly exigent reported to the lady next morning that she had been disturbed during the night by sundry insects and added "It isn't the little bit they'd eat that I'd begrudge them, but it's their constant trampling' that has me annoyed."

Nobody begrudges the little experts at Farnborough the little bit they would eat but their trampling is not only annoying to the British Aircraft Industry it is definitely a danger to the Royal Air Force and our First Line of Defence. Therefore they must be quietly, but if necessary forcibly removed from all positions in which they can do harm.—C. C. C.

An Anniversary Coincidence.

Fifteen years ago, on July 25, 1909, M. Louis Blériot flew across the Straits of Dover on a Blériot monoplane, and thus became the first person to travel across the Channel by air.

On July 27, the total number of passengers conveyed across the Channel by the various air lines during the week amounted to 1,055.

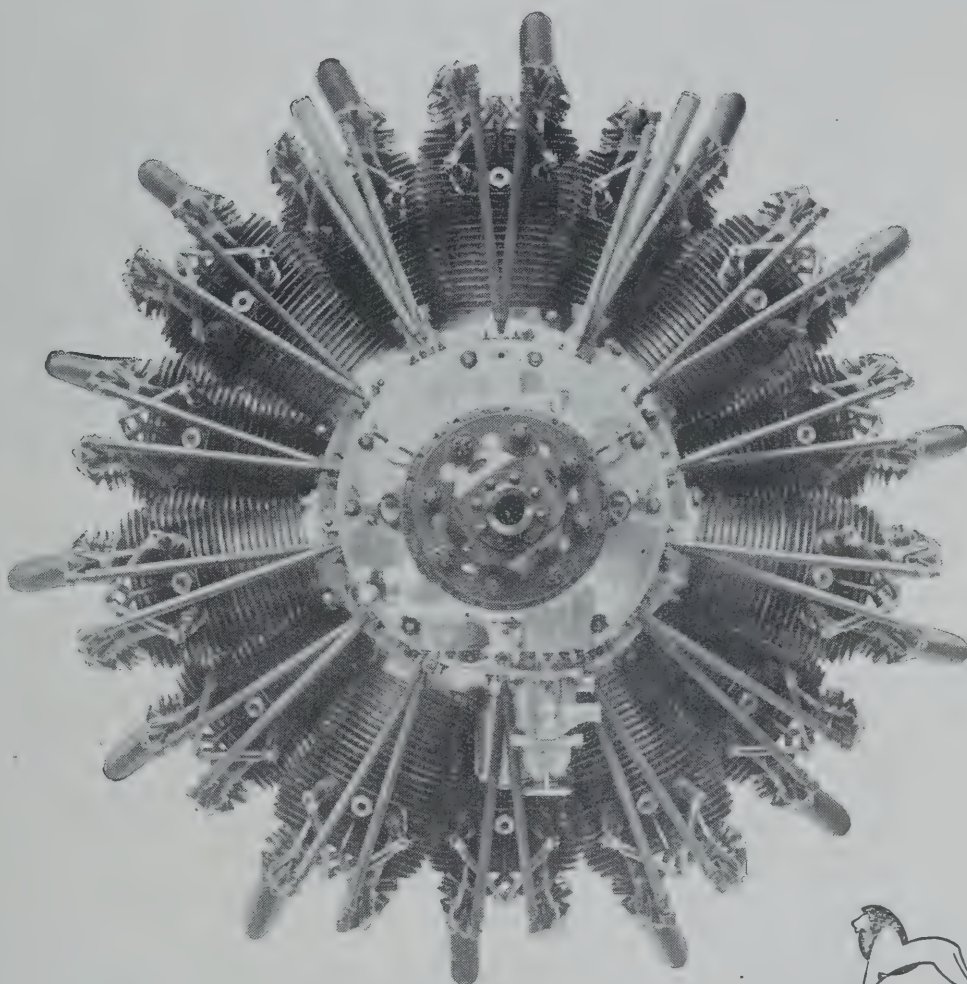
Thus fifteen years after the first man flew the Channel the week's total of passengers by air across the Channel has reached and passed the number one thousand.

Further details will be found on the page devoted to Commercial Aeronautics.



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AIR TRANSPORT IN THE WEST INDIES.

By C. G. GREY.

Those who have taken an intelligent interest in the development of air transport have long perceived that ultimately there must be great opportunities for the development of air transport in and around those islands off the Gulf of Mexico which are commonly called the West Indies. There is constant communication and passenger traffic between the West Indian Islands belonging to various nations and the mainland of South America and North America. There is also a great deal of mail traffic between the West Indies proper and Bermuda and the Bahamas and Canada.

On all these lines of communication transport is slow because the ships employed although in the main excellent sea boats have not the speed of crack trans-Atlantic liners or even of cross-Channel steamers. On the other hand the distances between the islands and the mainland are short and there are plenty of excellent harbours which though not suitable for big ships afford ideal shelter for seaplanes. And for the longer journeys the direct line of flight is along the coast of the mainland where safety can be assured to the crews of machines which are forced to alight for any reason.

Altogether the conditions of flying are almost ideal except for occasional hurricanes which can always be foretold. And the demand for quick communication actually exists.

These facts were all thoroughly understood by the people who promoted the Bermuda and West Indies Aviation Company Limited very shortly after the War 1914-18. But five or six years ago the possibilities of aircraft were not so well understood by the General Public as they are to-day. In addition the flying people themselves knew less about operating economically. And seaplanes themselves had not been developed even to the moderate extent that they are to-day. Consequently the Bermuda Company was compelled to cease operations.

That is the fate which has invariably fallen upon the majority of pioneers in everything that has ever made for progress in the World's history. The real pioneer is simply asking for the fate of the first infantry wave in a big battle. It is the second and sometimes the third or fourth waves which carry the objective. The few who survive from the first wave generally attain to distinction, and similarly some few pioneers attain to wealth but it is generally the early arrivals on the heels of the original pioneers who do best by what is called in America coming in on the ground floor. It seems to be more paying than digging foundations.

A NEW VENTURE.

These remarks are suggested by the official notification of the registration of a new company to operate air transport in the West Indian area. The notice reads as follows:—

NEW COMPANIES:—West Indian Aerial Transport Co., Ltd. (198,182). Registered May 21. Capital £30,000 in 20,000 12 per cent. cumulative preferred ordinary shares of £1 and 20,000 deferred shares of 1s. To carry on in South America, the West Indies or elsewhere the business of carriers of passengers and goods by air, land or water, manufacturers of and dealers in aeroplanes, seaplanes, flying machines, airships, balloons, etc. The surplus profits remaining after paying the preferential dividend shall be divided as to 50 per cent. amongst the preferred ordinary shareholders and as to 50 per cent. amongst the deferred shareholders. The preferred ordinary shares are entitled to priority for capital in any winding up. The first directors are:—Viscount Curzon, M.P., 35, Curzon Street, W.1 (Chairman); Sir A. Herbert Matthews, Kt., 9, Alwyn Avenue, Chiswick, W.4; A. E. Turner, B.A., 25, Aberdare Gardens, N.W.6, director of companies; and Major E. W. Seale, R.E., O.B.E., Sandringham, Westcliff Avenue, Westcliff-on-Sea, engineer.

Minimum cash subscription: 7 shares. Qualification: £1. Secretary: H. Hollister. Solicitor: C. C. Singleton, 18/19, Ironmonger Lane, E.C.

This Company is of very considerable interest for various reasons. It will be noticed for example that the Chairman is Viscount Curzon, M.P. There have been several occasions when one has felt called upon to differ from Viscount Curzon's opinions as expressed in the House of Commons because he has been consistently on the side of the Navy in all the controversies between the Admiralty and the Air Ministry, but one has always respected his opinions which have been largely due to his intense loyalty as a Naval officer. Apart from those opinions he has been a firm friend of aviation and his belief in the necessity for adequate air strength at sea is as firm as one's own. It is only in the allocation thereof that there is any difference of opinion.

Judging by Lord Curzon's views as expressed in the House one imagines that his interest in this Company is inspired at least as much by patriotism as by any hope of gain, for undoubtedly it would be greatly to our advantage to have properly established air lines of communication in the West Indies in readiness for future war. We draw supplies of many valuable materials from that area and an enemy which possessed any strength at sea would most certainly attack our sea transport in that direction.

Thus this venture deserves success both because of the commercial benefits which it can confer on the areas which it proposes to serve and because of its strategic possibilities.

Sir Herbert Matthews is Secretary to the Central Chamber of Agriculture and has the reputation of being a first-rate organiser. It will be remembered that as recently as the beginning of the year he founded a new Parliamentary Party known as the "Rural Party," the object of which is to give the Agricultural Industry definite representation in the House of Commons. He is much interested in the development of tropical agriculture in the Colonies, especially in connection with the resuscitation of the Sugar Industry in British Guiana and the development of rice and cotton-growing.

Mr. A. E. Turner's association with aircraft began during the War when he resigned the important position of Chief of the Contracts Department at the War Office in order to join the Aircraft Manufacturing Company, Ltd. Thereafter he was associated with Air Transport and Travel Ltd. and is now a director of the De Havilland Company. Thus it may be seen that he has experience both of official and commercial ways. He is universally liked and respected by all who have had dealings with him and he should be a most valuable asset to the firm.

Major Seale is an engineer and during the War was a Sapper officer. He was on the Staff of Sir Eric Geddes as acting Chief Mechanical Engineer and was second British Representative on the First Inter-Allied Armistice Commission on Railway Transport. In addition to being a director of the firm he is apparently the General Manager.

AIMS AND OBJECTS:

Judging by what one has heard from him in the course of conversation it seems that the firm's plans are based on very sound premises. One gathers that the first idea is to establish communications between the West Indian Islands and thence to develop air lines in various directions.

On the technical side the West Indian Aerial Transport Co. Ltd., is co-operating with the Aircraft Operating Co. Ltd. the head of which is Mr. Alan Butler with Major H. H. Hemming as technical engineer.

The purely business side of the firm's work will be conducted by a well-known firm which has its head office in the city of London with large interests and branch offices in the West Indies.

In connection with this work Major Hemming has already arrived in Georgetown, British Guiana, in order to make a preliminary survey of a proposed air line from Georgetown into the interior of the country by way of the Mazaruni.

The plains behind the forest area in British Guiana are of immense value and the forest area itself is rich in rubber. And there are rich diamond-fields and gold-fields also in the area. But owing to the nature of the river, which is infested by rapids and shoals, communication is a very slow business. Consequently it is proposed to establish a passenger and mail line along the river using seaplanes for the purpose.

A good idea of the problems involved may be gathered from a report issued by the Government of British Guiana and dated October 26, 1923. This report says:—

To reach the centre of the (diamond) workings involves a journey of 62 miles by sea from Georgetown to Bartica and 185 miles up-river in open boats propelled by from 18 to 22 paddlers and outboard motors. The time taken on the river journey varies from 16 to 22 days (mean average) according to the season and to this must be added the delay in waiting at Bartica for a passage, which is rarely less than 2 or 3 days and may be a week or more. The total average time spent in reaching Kurupung from Georgetown may therefore be put at from 3 to 4 weeks.

The cost of freight, to shippers who do not own their boats, is 130 dollars per ton or more, with the risk in all cases of serious damage or total loss from exposure or accident in the rapids and at the various portages.

Men attacked by illness en route frequently die before they can return to hospital at Bartica, others who leave the district owing to ill-health die on the way down and within the past ten months forty men have lost their lives in the rapids and whirlpools.

Over this primitive line of communication there will have been conveyed during 1923 some 50,000 people, going and returning, and nearly 5,000 tons of stores, at the cost of an enormous outlay of physical effort, working time and money, to say nothing of valuable lives, all of which under a better system of transport would have been applied to increased production.

At present the whole of it is an unproductive expenditure of capital and labour and a sheer waste. No real development can take place until rapid and easy means of access to the district have been provided, for freight as well as passengers.

At present the whole population of the district subsists on tinned and other foodstuffs brought up from Georgetown. It is estimated that the stock of supplies ordinarily on hand at any one time would not suffice for more than ten days.

This margin is dangerously small for a population of some 18,000 people over a fortnight's journey away from the nearest source of supply at Bartica and in the event of unusually high water and any resulting

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interruption of the normal upward traffic the position might become very serious.

Such a situation occurred in July last. In December, 1922, and March, 1923, when the river was in flood, two boats were capsized in the whirlpools below the Tutuba and Kaburi Falls respectively with the loss of 32 lives in all. These disasters were not forgotten when the river again came down in flood in July and for several days boats either would not leave Bartica or else halted en route. The result was a shortage of food supply and at one time the Warden was able to obtain, and then with much difficulty, only three days' rations for his boat's crew.

The provisioning of many thousands of men at such a distance and under the present difficulties of transport is another and a strong reason for providing quicker and less hazardous means of communication between the Diamond Fields and the coast.

There is no reason, excepting the absence of an agricultural population, why the district should not be self-supporting so far as ground provisions are concerned and from a health point of view this is one of its crying needs.

As Major Seale suggests it might be expected that under such difficulties little development could be effected, but the report quoted states that the traffic to the district has increased fivefold in three years and ten months, and that by the end of 1923 it would be more than six times that of 1920. Also the diamond output has increased as follows:—1920, 38,111 carats, value £271,266; 1923 (first 10 months), 161,585 carats, value £781,221. The estimated value for the whole of 1923 was approximately one million pounds sterling.

The air route from Georgetown to the Diamond Fields is approximately 160 miles. The climate is suitable for flying there being no extremes of heat or cold, and the advantages of travel by air as compared with the disadvantages of those by land above described are obvious.

These may be summarised as follows:—(A) The time saved in transport of passengers (two hours against 20-30 days), and elimination of risks to life mentioned in Government Report. (B) Wider market for the stones as at present the buyers are almost entirely people who live in the district, whereas with the new service sellers will be able to take their stones into Georgetown or buyers can fly from Georgetown to the workings. (C) Quicker and cheaper delivery of goods required at the mines. These principally consist of mining tools and materials, clothing, food, etc., etc. (D) Elimination of loss, all risks being covered by insurance.

The directors are therefore confident that the Company will be in a position to obtain a very substantial proportion of both the passenger and goods traffic at remunerative rates.

Apart from the revenue-earning prospects of the Company,

The King's Cup Race.

The following entries have been received by the Royal Aero Club for the King's Cup Race on August 12. The list gives the entrant, the machine, the engine, and the pilot in each case in that order:—

- A. S. Butler, D.H.37, 275 h.p. Rolls-Royce Falcon, A. S. Butler.
 Sir Glynn Hamilton-West, Armstrong-Whitworth Siskin, 350 h.p. Armstrong-Siddely Jaguar, Flt. Lt. H. W. G. Jones, M.C.
 J. D. Siddeley, Armstrong-Whitworth Siskin, 350 h.p. Armstrong-Siddeley Jaguar, F. T. Courtney.
 G. Le Champion, Martinsyde F.6, 220 h.p. Viper, J. King.
 Sir Charles Wakefield, D.H.50, 240 h.p. Siddeley Puma, Alan J. Cobham.
 C. R. Fairey, Fairey III D Seaplane, 450 h.p. Napier Lion, Norman MacMillan.
 H. Leigh-Mossley and G. L. Wood, Supermarine Seagull, 450 h.p. Napier Lion, Lt.-Col. The Master of Sempill.
 Squadron Commander J. Bird and H. T. Vane, Supermarine Seagull, 450 h.p. Napier Lion, H. C. Biard.
 Douglas Vickers, Vickers Vixen, 450 h.p. Napier Lion, H. F. Payn.
 Mrs. Theodore Instone, D.H. 50, 240 h.p. Siddeley Puma, F. L. Barnard.

Mr. Alan Butler, Chairman of the De Havilland Company, flew in the first King's Cup Race and his D.H.37 was flown last year by Major Hemming.

Flt. Lt. Jones of Northolt is making his debut in air racing. Mr. Frank Courtney on a similar Siskin won the event last year.

Mr. Le Champion has bought Mr. Raynham's F.6, which finished second in 1922. Mr. King, the pilot, flew a Sopwith Gnu in the last Aerial Derby.

Mr. Alan J. Cobham finished third in 1922 and second last year. At that rate he should win this year's event.

Mr. C. R. Fairey makes a welcome reappearance in air racing. His only appearance as an entrant previously was in the 1919 Schneider Cup. In Mr. Norman MacMillan he has secured one of the most brilliant and at the same time most steady-going of pilots.

Lt.-Col. The Master of Sempill makes his debut in air racing on the Supermarine Seagull. Mr. Henry Biard entered for both previous races and competed last year on the Sea Eagle.

however, it should in addition prove of considerable assistance in developing the Colony and peculiarly helpful cases of sickness, as it will place the residents at the Diamond Fields within two hours of medical service Georgetown.

The Company will not, of course, be limited in its operations to the Georgetown Diamond Fields route as it may be found feasible to establish a service to the Gold Fields, the development of which is hampered to as great or greater an extent by lack of transport facilities.

POSSIBLE EXTENSIONS.

From this first air line in British Guiana itself the Company hopes to organise extensions so as to link up with Trinidad and the West Indian Islands and so with the United States by way of Florida.

One great scheme, which may take some time to develop but should be in the end the most important of all, is an air line from Canada down the coast of the United States to the West Indies. There is an immense amount of ocean-going traffic between the two areas but whichever way mails and documents are carried, whether by sea all the way or by ship to a port in the United States and thence by rail, communications are very slow and in view of the value of time in the transfer of bills of lading and such documents a high-speed air line should very soon pay its way.

Still another scheme is an air line from Chile all the way up the West coast of South America and across by way of the Panama Canal to New York. In this case also the objective is the rapid conveyance of documents in connection with which time is money, chiefly one imagines in connection with the Chilean nitrate trade. It is a very ambitious scheme and would take an immense amount of organisation as the work would have to be done by relays of machines along a coast which provides practically no landing ground and very little sheltered water for seaplanes. Nevertheless, with careful organisation such a line could be made a success provided that it had sufficient financial backing.

With such schemes in view there are evidently great possibilities for the West Indian Aerial Transport Co. Ltd. Those connected with the firm in each of its various activities, commercial and technical, are thoroughly sound people who have no illusions as to the difficulties of the task before them. They have all fought hard battles in the past both in war and peace and one wishes them complete success in this new undertaking.

Mr. Payn flew in the first race. Before joining Vickers Ltd. he was an Air Ministry test pilot.

Mr. F. L. Barnard won the first event and was a competitor last year.

Only one seaplane pure and simple, the Fairey, has been entered and will have all the Felixstowe officials and all starting facilities all to itself. The Supermarines are amphibians and will start from Martlesham.

The Light Aeroplane Competition.

The supplementary regulations for the above competition have now been issued by the Royal Aero Club. These will be discussed fully in the next issue of THE AEROPLANE. One of the most important regulations is the holding of Elimination Trials on Sept. 27 and 28. Machines which do not comply with these regulations on those days will be barred from further competition.

This will prevent the practice of building machines on an aerodrome during the week and flying them on the last day as has been done in similar competitions in former years.

A Vickers Acquisition.

Dr. Leslie Aitchison, D.Met., B.Sc., F.I.C., the well-known consulting metallurgist of Birmingham, has given up his practice to take up a responsible position as assistant to Mr. Horace W. Clarke, the Managing Director of James Booth and Co. (1915) Ltd., of Argyle Street, Birmingham.

This well-known industrial firm are in the Vickers group of companies, and are the sole manufacturers of the light alloy "Vickers Duralumin," besides doing extensive business in the manufacture of the usual non-ferrous metals.

Dr. Aitchison has had a very wide and varied experience having been consulting metallurgist to the Air Ministry for a number of years, and also acted in the same capacity for the Association of Drop Forgers and Stampers.

He is a Doctor of Metallurgy at Sheffield University, and was for several years on the Staff of his University. He has interested himself particularly in the study of light alloys for aircraft, and his experience in this direction should be of great value to the firm to which he has definitely allied himself.

Officially, he will act as Superintendent of the Company and began duty on July 1 last.

All will wish Dr. Aitchison success in his new position and it is certain that both the Industry and his firm will benefit greatly by his experience.

DURABILITY

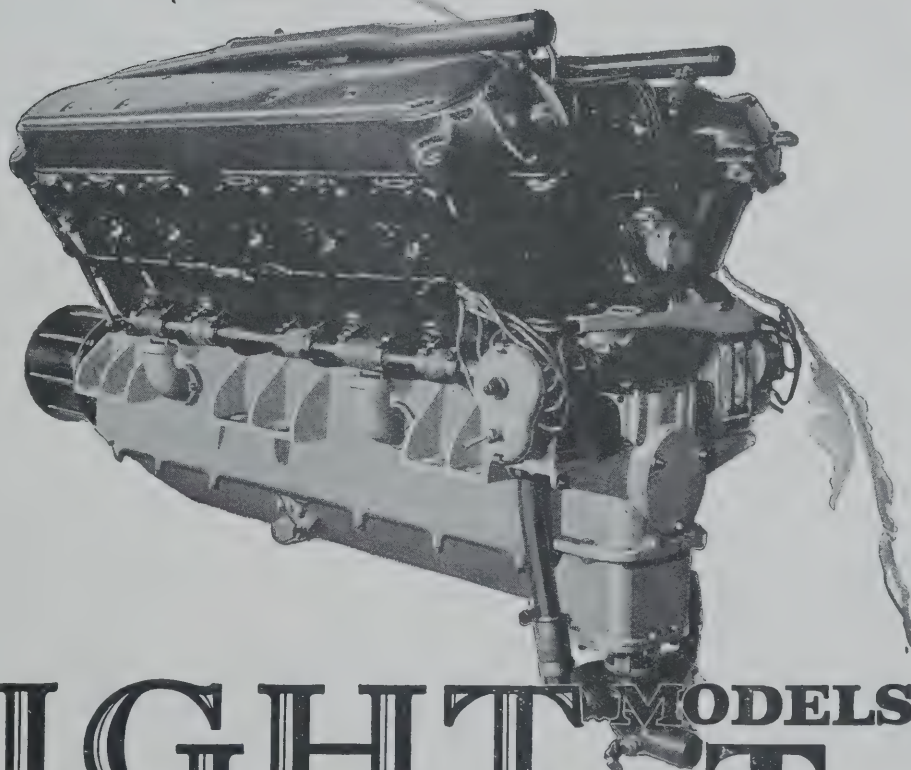
THE prime factor in the design of this type of engine is the ability to withstand the heavy duty of bombing, torpedo and long distance flying. All vital parts are particularly rugged. Hard flying at near and above rated power has thoroughly proven its durability. A generous overload capacity above rated power contributes greatly to longevity and smoothness.

The wide engineering experience and ability that is so important a heritage of this organization is characteristic in this latest Wright achievement.

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The Wright T-type is being installed now in single and multi-engine planes for bombing, torpedo and long distance service.

The underlying desire in every designer's mind is engine dependability. The Wright T-type combines this dependability with very high power and exceptionally light weight. These characteristics insure economy in maintenance and a saving from loss of large and expensive planes in which this type of engine is installed.

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THE ROYAL AIR FORCE.

The London Gazette.

July 22.

GENERAL DUTIES BRANCH.—Lt. H. A. R. Puttee, Beds. and Herts. R., is granted a temp. commn. as a Flg. Off. on seconding for four years' duty with the R.A.F. (July 15).

The follg. are granted temp. commns. as Flg. Offs. on attachment to the R.A.F. for four years:—LTS.—R.N.—E. M. C. Abel-Smith, J. D. Ainger, E. W. Anstice, C. J. N. Atkinson, E. E. Blackwell, G. F. N. Bradford, J. H. F. Burroughs, J. M. Chandler, F. W. H. Clarke, M. Cursham, H. Ditton, F. A. St. G. Dredge, A. G. Elliott, H. L. St. J. Fancourt, E. A. A. Gibbon, R. R. Graham, I. R. Grant, H. E. Guerrier, H. R. Hancox, F. H. Kennedy, A. M. Kimmins, E. J. S. Knocker, R. St. A. Malleison, M. A. Maude, A. D. Merriman, J. Y. Mills, S. T. Morgan, R. A. Peyton, R. G. Poole, S. Richardson, G. R. M. Robertson, J. I. Robertson, H. L. Roseveare, M. S. Slattery, the Hon. J. M. Southwell, C. B. Tidd (June 16). SUB-LTS., R.N.—E. B. Carnduff, J. B. Heath, H. N. Lay, A. M. Rundle (June 16). CAPTS., R.M.—E. J. O. Ellison, G. E. Wildman-Lushington (June 16). LTS., R.M.—H. M. A. Day, A. M., J. M. Fuller, R. M. Giddy, B. W. Knowles, J. L. L. Rees, S. C. Woolley (prob.) (June 16).

Flg. Off. J. C. Dunbar is transferred to the Res., Cl. A. (July 22). The S.S. Commn. of Plt. Off. on probation I. A. Bull is terminated on cessation of duty (July 25).

Obs. Off. J. Bowen is dismissed the service by sentence of Field General Court Martial (July 7).

STORES BRANCH.—Sq. Ldr. J. C. E. Gillham is transfd. to the Reserve, Cl. C (July 24).

RESERVE OF AIR FORCE OFFICERS.—The follg. Offs. are confirmed in rank with effect from the dates indicated:—FLG. OFFS.—A. E. de M. Jarvis, D.F.C. (June 21); A. G. Loton, F. F. Minchin, C.B.E., D.S.O., M.C. (July 22). PLT. OFFS.—T. A. Jackson (June 4); G. Burton (June 14); G. S. Fenwick (June 17); G. S. Fiske (June 21); W. E. Bailey (July 22).

Appointments.

Week ending July 28.

GENERAL DUTIES BRANCH.—Wing Commander C. E. Maude, to R.A.F. Depot, supernumerary, pending disposal, 28/7.

Flight Lieutenants F. L. B. Hebbert, to Air Ministry, 18/8; A. A. Ward, to No. 13 Sqdn., Andover, 1/8; E. J. Cooper, D.S.C., to Arm. and Gunnery School, Eastchurch, 24/7; A. L. Russell, to Elect. and Wireless School, Flowerdown, 24/7.

Flying Officers R. Beresford, to R.A.F. Depot, on appointment to a S.S. Commn., 21/7; T. B. R. Meadmore, to No. 24 Sqdn., Kenley, on transfer to Home Estab., 18/7; H. A. R. Puttee, to No. 2 F.T.S., Digby, on appointment to a temp. commn., 15/7; A. P. Ritchie, to R.A.F. Staff College, Andover, 28/7; G. R. Stafford, to No. 30 Sqdn., Iraq, 1/7; A. M. Reidy, to No. 6 Arm. Car Coy., Iraq, 22/6; P. J. Bett, N. T. Goodwin, D. H. Macdonald-Lawson and P. J. Phelan, to No. 4 F.T.S. Egypt, 18/7.

Pilot Officers J. A. Ballantyne, I. S. Birt, P. S. Blockley, C. V. Brealey, W. T. Collins, F. E. J. Croker-Walsh, C. G. Crowden, F. H. Farrow, R. F. Francis, A. E. Haes, W. T. Holmes, K. W. James, I. A. G. D. Kelly, C. A. E. S. Kregor, G. D. Middleton, H. Milward-Bason, E. H. Newman, P. H. Nicholls, W. E. Nicholls, C. H. Noble, A. G. Pickering, A. O. Pollard, V.C., M.C., D.C.M., E. G. Rosling, A. T. S. Suddert, D. M. Tyingham and G. A. Younger, to No. 2 F.T.S., Digby, on appointment to S.S. Commns., 15/7; A. C. H. Sharp, to No. 2 F.T.S., Digby, on appointment to a S.S. Commn., 16/7; H. B. Barrett, S. F. Bell, A. E. Carpenter, D. P. Clayton, W. A. Cooke, J. E. Davies, B. B. Dowling, L. A. Eggesfield, A. C. Evans-Evans, H. R. Gillespie, W. E. Gray, R. C. B. Hendy, J. H. Hunter, M. H. Jenks, N. S. Little, D. J. Lloyd, C. W. Martin, H. Miller, C. H. Morgan, R. W. Steele, W. E. Symonds, A. J. Thompson, C. W. L. Trusk, H. Walker and D. G. Wilson, to No. 4 F.T.S., Egypt, 18/7; J. S. Branch, to No. 2 F.T.S., Digby, 28/7.

MEDICAL BRANCH.—Flight Lieutenant (Medical) Hon. Sq. Ldr. W. R. Kemp, B.A., to Care and Maintenance Party, Isle of Grain, 16/6; J. K. R. Landells, M.B., to R.A.F. Depot (Non-effective Pool), 24/6.

CHAPLAINS' BRANCH.—The Rev. P. C. C. Lamb, M.A., to Station H.Q., Duxford, 23/6.

STORES BRANCH.—Squadron Leader (Stores) H. E. J. Hewitt, to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 27/6. Squadron Leader (Accountant) A. G. N. Belfield, to Aircraft Depot, Iraq, 18/7.

Flight Lieutenants (Stores) E. E. Porter, M.B.E., D.C.M., to No. 7 Group H.Q., Andover, 1/9; G. C. Anne, O.B.E., to School of T.T. (Men), Manston, 5/8; J. S. Browne, A.F.C., to Elect. and Wireless School, Flowerdown, 5/8; F. H. Sims, to Miscellaneous Details, Andover Station, 5/8; H. E. Tansley, M.C., to No. 1 Stores Depot, Kidbrooke, 5/8. Flight Lieutenants (Accountant) A/Sq. Ldr. G. H. White, to R.A.F. Depot, on appointment to a temp. commn., 1/7, to Brigade Account Office, Iraq, 4/7; H. W. Capener, to H.Q., Iraq Command, 18/7. Flying Officers (Stores) S. R. L. Poole, to No. 29 Sqdn., Duxford, 5/8; A. J. Adams, to No. 41 Sqdn., Northolt, 5/8. Flying Officers (Accountant) J. Freeman-Powder, to No. 4 F.T.S., Egypt, 1/7; J. J. Caiger, to H.Q., Iraq Command, 18/7. Pilot Officer (Stores) R. G. A. Vallance, to I.A.A.D., Henlow, 5/8.

Accountant Officers in the R.A.F.

The Air Council has instituted a revised method of entry into the commissioned ranks of the Accountant Branch of the R.A.F. It is hoped to obtain a large number of candidates from among men who have recently completed article service. To such men the Air Force as a growing Service is able to offer a permanent and interesting career.

The Accountant Branch of the R.A.F. was instituted in 1921, to give effect to a decision that accountancy in the R.A.F. should be decentralised to units. Under this system the accountant officer of a unit is responsible on the one hand to the Commanding Officer and on the other direct to the

Director of Accounts at the Air Ministry. He undertakes the whole accounting work of his unit including both pay and stores accounting. The great value of the technical equipment of the R.A.F. and its complexity combine to emphasise the importance and responsibility of the accounting for it.

Full details of the scheme, including particulars of emoluments and retired pay, etc., are contained in Air Publication No. 1090, which can be obtained on application to the Secretary, Air Ministry.

Candidates must be between 22 and 26 years of age, but those of an age up to 30 years may be accepted if they have served in the fighting forces. Applications, which (for this year) must reach the Air Ministry not later than Aug. 31, must be made on a form, which can be obtained from the Secretary, Air Ministry. Entry will be by competition held annually in London in the latter half of September. The competition will consist of:—An interview before a Selection board; A written examination in English and General Knowledge; and a written examination in Accountancy.

The Fleet and its Air Arm.

On Saturday July 26 His Majesty the King reviewed a portion of the British Fleet at Spithead. The ships included the Atlantic Fleet and the Reserve Fleet.

It is of interest to compare this Review with that which immediately preceded the outbreak of war in 1914 when in fact the British Fleet was mobilised owing to the foresight of Mr. Winston Churchill (then First Lord of the Admiralty) and Prince Louis of Battenberg (First Sea Lord) in the certainty of war with Germany.

In this 1924 Review there were ten battleships as against fifty-five in the Review of 1914, there was only one battle cruiser as against four in 1914, and there were nine cruisers against fifty-five in 1914, but on the other hand there were eighty-eight destroyers this year against fifty-six, and twenty-four submarines against twenty, and this year there were thirty-seven mine-sweepers against none in 1914, and there were no mine-layers whereas in 1914 there were seven. The total number of ships this year was 193 against 205 in 1914.

This year there were in the Review two of our new aircraft carriers, the *Argus* and the *Hermes*, the latter the first ship to be built solely as an aircraft carrier. In 1914 we had no real aircraft carriers at all, though the original *Hermes*, an old light cruiser, had been fitted to carry aircraft. It may be remembered that she was torpedoed while crossing from Dunkirk to Dover in November 1914. The old *Ark Royal* was in process of being transformed from a collier to an aircraft carrier when war began.

At the Review in 1914 the Royal Naval Air Service which had come into being on July 1 as a separate entity, instead of being the Naval Wing of the Royal Flying Corps, produced about twenty seaplanes some of which were moored out at Spithead while the rest were stationed at Calshot from which on the morning of the Review they flew over the assembled ships.

For the 1924 Review it was arranged that three Fairey Flycatchers (Jaguar engines) should escort the Royal Yacht from Portsmouth to Spithead and that ten of the latest type machines of the Fleet Air Arm should fly past the Royal Yacht when she left the lines of ships after the King had completed his inspection.

The machines which actually took part in the fly past were two twin-engined F.5 flying boats of the old war-time type, two Fairey III D seaplanes, two Westland Walrus fleet spotters, two Blackburn Dart torpedo-droppers and two Avro Bison fleet spotters. All these had Napier engines with the exception of the flying boats which had Rolls-Royces.

All these machines were duly produced by No. 10 Group R.A.F. at Lee-on-Solent and Gosport. Everything proceeded according to plan and the Royal Air Force conveyed a very favourable impression. Besides doing their escort work the Fairey Flycatchers gave an exhibition of aerobatic flying over the Fleet and after dark an illuminated aeroplane flew over the Fleet.

For some curious reason it was *verboten* to take photographs of the Fleet. One cinematograph company applied for permission to take a cinematograph picture of the Fleet from the air. The unofficial advertising department of the Admiralty regarded the project sympathetically but some official department or other later refused permission.

Considering that every British warship that enters a foreign port or approaches a foreign shore is liable to be photographed at close quarters by any foreign photographer who can get within reach by land, sea or air this prohibition of photographing the Fleet seems ridiculous, especially as a really good cinematograph picture of the Fleet might have gone far to convince the people of this country that we have not yet quite scrapped the British Navy.

1919

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1924

HEAT TREATMENT



IF high grade steels and light alloys are to have the mechanical properties they are intended to possess, it is of utmost importance that they should receive correct heat treatment.

BOULTON & PAUL Ltd. have laid down a plant, specially to meet the exacting requirements of Metal Construction, with which accurate temperature control may be effected.

Heat Treatment of all structural members, joint plates, etc., is most carefully carried out at the works of Boulton & Paul Ltd. on sound metallurgical lines and under rigid supervision.

THIS advertisement is the fifth of an interesting series of announcements dealing with the design and construction of Boulton & Paul Aeroplanes, to appear at regular intervals in this journal.

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Contractors to The Admiralty, The War Office, H.M. Board of Works, The Crown Agents for the Colonies, English, South American and Indian Railways, Soudan, South African and Egyptian Governments.

The R.A.F. at Tunis.

Recently a couple of Fairey III D. seaplanes with Napier Lion engines from the R.A.F. Base at Malta paid a visit to our French comrades of the air at Tunis, from which port in the bad old days the Barbary pirates used to sally forth and cut up French and English shipping in the Mediterranean until they were finally dissuaded from their evil practices by a certain Admiral Blake.

On this occasion the English controllers of the seas had a very different reception at Tunis. They were received with open arms by the officers and men of the French Service d'Aviation Militaire, which at Tunis is under the command of that famous officer Commandant La Fargue. Everything possible was done to make the visit of the R.A.F. pleasant. Guards were provided for the machines, motor boats were placed at the disposal of the personnel in the harbour and cars were provided for them ashore, and they were accommodated by the French Service d'Aviation Militaire.

During their visit a banquet was given in their honour by the French aviators and at the banquet Commandant La Fargue said how pleased he and his people were to be able to return in some degree the hospitality and service given by the R.A.F. to his brother-in-law, Captain Doisy, during his flight to Tokyo. The Commandant said that without the help which Captain Doisy received from the British in Iraq and India his flight would never have been completed.

After visiting Tunis the British seaplanes visited the French African port of Sfax. Not only were they escorted by seven French military machines part of the way to Sfax but the night before they left Tunis a French officer and a detachment of mechanics were sent by road 150 miles to Sfax to arrange for their arrival there.

Such demonstrations of good will between the French and the British Flying Services as are shown by this pleasing incident and by the visit of our French guests to the Pageant and by the visit of our Staff College people to France a few months ago go far to nullify the unpleasantness which is so frequently caused by the mere politicians of our two nations.

The whole flight was most successful. The R.A.F. had no trouble with the Fairey seaplanes nor with the Napier engines and throughout the flight they were in touch with the base at Malta by radio-telephony.

THE GLOBE TROTTERS.

THE AMERICAN EXPEDITION.

The three Douglas World Cruisers are now at the Blackburn Co.'s aerodrome at Brough for general overhauling. This overhauling includes the installation of new engines and the substitution of float gear for the wheels.

It has been alleged in the newspapers that the floats which have been fitted are those used on the machines from Seattle to Calcutta and that in transport from Calcutta to Brough they were slightly damaged and that this has caused some delay in fitting at Brough.

The true story is that the floats arrived at Brough from America many weeks before the aviators reached Calcutta, and have been waiting there ever since. They had not been used before and the machines with the floats fitted were still waiting on July 29 for weather which would allow them to be launched on the Humber.

What did come from Calcutta were the small radiators used in the North Pacific crossing. They arrived about July 25 in a damaged condition and were made as good as new by the Excelsior Radiator Co., of Leeds, who had no Air Ministry "experts" to interfere with their work. These radiators have now been fitted for the North Atlantic crossing instead of the big radiators used in India and Iraq and Southern Europe.

The machines duly fitted with floats were due for test on the Humber on July 28 and the departure for Kirkwall should take place on the 30th.

The U.S. light cruiser *Richmond* was due to arrive at Rosyth on July 28 and not until then could any definite date be fixed for the resumption of the flight. The *Richmond* is flagship of Rear-Admiral Magruder commanding a special escort squadron of seven destroyers and other vessels. On the arrival of the flagship they will leave for their allotted positions linking up with six other vessels operating from the American side.

The U.S. light cruiser *Milwaukee* has provided moorings at Pictou, Nova Scotia, Fawkes Bay and Cartwright Bay, Labrador and has returned to India Harbour, Labrador, where a refuelling base has been established. Four destroyers have been allotted stations between Iceland and Nova Scotia and they left Newport, R.I., on July 24 to take up these positions.

It is reported that the British Admiralty have offered the services of naval vessels to co-operate with the American squadron on the first part of the trans-Atlantic crossing.

From Brough the American expedition will fly to Kirkwall in the Orkney Islands and they will use the old seaplane moorings at Houton Bay, some ten miles from Kirkwall, laid by the R.A.F. during the war. The previously-arranged stop at the Faroe Islands has been abandoned so that their route

now lies via the Orkney Islands, Iceland, Greenland and Labrador.

THE BRITISH EXPEDITION.

The following wireless message from the Japanese destroyer *Isokaze* was received by *The Times* on July 21:—

Flying Officer Plenderleith is recovering from his attack of fever. He is still in bed at the blue fox farm. The other members of Squadron Leader MacLaren's party are testing the camp equipment on the beach near the farm. Dense fog still prevails, and a heavy gale is blowing.

The party is in excellent spirits. Lieut.-Colonel Broome is especially happy in his work as cook, and is proving the suitability of selection of camp gear. Ample food and drink has been supplied for the destroyer.

The Vickers-Napier Vulture is riding out the storm, moored under the lee of the cliff. A change of wind, though unlikely, might begin a different story. The Japanese destroyer *Hamakaze* is waiting at Murakimi. The *Thiepval*, which had left Petropavlovsk, has returned there to await the arrival of the airmen. She has a spare engine on board. Beyond Urup it is likely that the fogs will diminish, and clearer weather is reported from the north. Urup is a perennial focus. The *Isokaze* will provide shelter for the amphibian if necessary.

On July 23 the Vulture and her crew left Urup for Broughton Bay at 07.40 hrs., the Japanese destroyer following immediately. At 18.00 hours the same day they were reported to have arrived at Murakami Bay, Paramushir Island, some 400 miles from Urup and 300 miles beyond Broughton Bay.

On July 24 the Vulture left Paramushir Island at 08.30 hours, but encountering thick fog was compelled to return one hour later. She got away again at 15.10 hours and reached Petropavlovsk, Kamchatka, at 19.35 hours. Here she was met by the Canadian Fishery Protection Cruise *Thiepval*. The *Thiepval* has been employed since March on laying dumps and depots across the Pacific, in the Aleutian and Kurile Islands.

Col. Broome who has been in charge of the Pacific organisation had been since March engaged on depositing rations, fuel and equipment at tiny settlements in the Kuriles and Aleutians and on uninhabited islands about 250 miles apart along the entire distance from Tokio to Vancouver. One of Col. Broome's accomplishments is a unique chart measuring 30 ft. by 15 ins. wide covering the whole flight across the Pacific.

AN ARGENTINE EXPEDITION.

On Saturday July 26 a new Round-the-World expedition was begun when at 06.29 hrs. Major Pedro Zanni of the Argentine Flying Corps left Amsterdam accompanied by M. Beltrame on a modified Fokker C.IV biplane (450 h.p. Napier engine) for Paris with the object of following Sq. Leader MacLaren's course round the World.

Owing to the prevailing bad weather he was forced to land at Rotterdam. Leaving Rotterdam later in the day, he arrived at Le Bourget, Paris, at 15.00 hours.

On July 27 he left Paris at 10.56 hours for Lyon where he arrived at 13.45 hours.

Major Zanni is using three Fokker machines all equipped with 450 h.p. Napier engines, a Fokker C.IV land machine for the flight from Amsterdam to Tokio, a Fokker C.IV seaplane for the Pacific crossing and a special Fokker low wing monoplane seaplane for the Atlantic crossing.

Originally the crew was to consist of Major Zanni, Pilot Lieut. Nelson Page, Navigator, and M. Beltrame, as mechanic and to accommodate these the Fokker C.IVs were fitted with an extra cockpit in the rear of the normal observer's cockpit. Lieut. Nelson Page has been taken seriously ill in Amsterdam so that he has been left behind.

The C.IVs are equipped with extra large petrol tanks fitted in the top plane, having a capacity sufficient for a flight of 10 hours' duration at 112 m.p.h. cruising speed. The top speed of the machines is 137 m.p.h.

AN ITALIAN EXPEDITION.

On July 25 Signor Antonio Locatelli, the famous Italian Member of Parliament who was an Italian "ace" during the War 1914-18 and took part in the historic pamphlet raid on Vienna, left Pisa on a Dornier Wal flying boat (two 370 h.p. Rolls-Royce Eagle IX engines) in yet another attempt to fly round the World.

The machine he is using is one ordered from the Società di Costruzioni Meccaniche di Pisa by Captain Amundsen for a projected flight to the North Pole. As Captain Amundsen did not acquire the boat it is now being used for this World flight, apparently assisted by the Italian Government.

Signor Locatelli will fly westward in the track of the American expedition, and for the Atlantic crossing he has been promised help from all the dumps laid by the Americans. Petrol and oil for him have arrived at Brough and new Rolls-Royce engines have been ordered to await him at New York.

His course from Pisa will be via Marseilles, Lausanne, Rotterdam, Brough and thence to Kirkwall, Iceland, Greenland to America. His plans beyond that are so far unknown.

He was reported to be at Marseilles on July 25 and on July 29 he was reported as having left Lausanne for Rotterdam.

BRITISH



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AVIATION AT WEMBLEY.

All things considered there are surprisingly large numbers of exhibits at Wembley of a distinctly aeronautical interest. Probably that which attracts the most public interest is the activity of Major Savage's corps of skywriters but in odd corners of various places the earnest seeker after knowledge will find other—and possibly to him more interesting—evidences of the existence of aircraft and of the fact that aviation even to-day does play some part in the serious business of the world.

No claim can be made here to give an exhaustive list of the exhibits which have a bearing on aviation and can be found at the Exhibition, for the simple reason that so far nothing like a complete search even of the Palace of Engineering has been made—in fact the following notes may be taken to represent merely the discoveries made in the course of a couple of afternoons' discursive wanderings about Wembley as a whole, and will serve therefore to indicate how much there is that may be found and how much more there probably remains that one has not yet discovered.

The richest lode of aeronautical ore is to be discovered in the British Government Pavilion—which has been cunningly concealed in such a corner of the grounds that apparently only earnest seekers after the Amusements Park are likely to discover it. As however the only places where it is possible to obtain tea in reasonable comfort at less than Lucullus tariffs appear to be located in the same district, afternoon visitors who are not primarily seeking for the thrills of the Racer or suffering from a desire to smash crockery, are occasionally driven in that direction.

SERVICE AVIATION.

In that section of the Government Pavilion which exhibits the activities of the armed forces of the Crown there will be found displayed a large model on a small scale of an imaginary front line area in France during the war where-over a solitary "Snipe" is suspended in the attitude of machine-gunning an enemy trench during an attack by tanks and other surface forces on an enemy position. Apparently there are other aircraft in the vicinity, but the crowd of eager schoolchildren around this particular model prevented accurate observation from being taken.

Considerably more interesting is the model of an all-purpose Service aerodrome. This shows a large and very excellent aerodrome with sheds and sundry aeroplanes recumbent thereon on the shores of a deep-water harbour. On the shores of the harbour are seaplane sheds and slipways, with flying boats, amphibians and float seaplanes, while afloat off the station is a model of H.M.S. Argus, with a Blackburne Dart about to land, a Fairey 3 D. with wings folded on her lift, and—if one remembers aright—a Parnall Panther about to take off. This model although it obviously represents no real station it is an excellent piece of work, depicting very faithfully the general form and arrangement of a thoroughly well equipped naval co-operation base. Particularly the models of aircraft, though necessarily of small scale, are accurate and recognisable representations of Service types and are shown in their correct places.



There is also an excellent historical collection of models showing the phases through which aeroplanes have passed from the beginning of human flight up to the present. These cover the range from the original Wright biplane up to some of the most modern of British Service types. Of the earlier models one of the most interesting is the biplane built by Col. Cody at the Royal Aircraft Establishment (then known as the Army Balloon Factory) in 1909. The collection of models of the pre-war and war-time types is really excellently representative.

Of the post-war class the samples are on the whole well chosen. Here again the models are accurate and of realistic finish and the whole collection is worthy of close study. Unfortunately this exhibit is crowded into too small a space to provide the best effect.

An exhibit which attracts a considerable amount of attention is a full-sized sectional model of a pilot's cockpit complete with controls and instruments.

The control lever and rudder bar are driven through con-

cealed gearing so that a cycle of all the possible control movements is continually in process. Above the cockpit is a model of a D.H.50 whose control surfaces move in accordance with the movement of the controls in the cockpit, the model itself at the same time taking up the attitude corresponding thereto. Synchronising with the movements of the model an explanatory placard describing the particular manoeuvre is displayed.

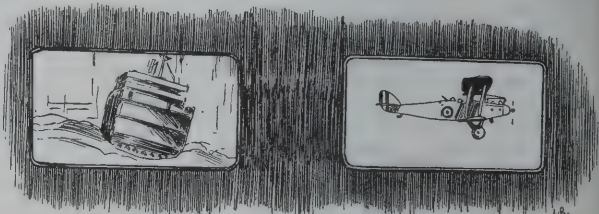
This model was made by the de Havilland Aircraft Co. and is by far the best arrangement one has yet seen for demonstrating graphically the methods by which an aeroplane is controlled.

Close to this there is a Rolls-Royce Condor III engine slowly rotated by an electric motor. An extremely realistic flicker of the oil-pressure gauge reading and the twiddling of the valve rocker arms are however the only noticeable signs of movement. A Siddeley Jaguar engine in the next show case however which is also rotated at a low speed, has been artfully sectioned so that practically all the working parts can be seen going about their business. The electric motor which serves to drive the engine is mounted upon a somewhat flexible base and the defects of the drive produce a curious jerky movement on the part of the visible piston in the engine which is certainly not characteristic of the normal running of a Jaguar.

The A.I.D. stage a series of exhibits of defective samples of aircraft and engine parts illustrative of the need for the most careful inspection of all aircraft components and of some of the methods adopted for discovering defects. This is an exhibit which can be more easily examined than described.

CIVIL AVIATION.

In other parts of the British Government Pavilion there are to be found a number of exhibits bearing on Civil Aviation. Close alongside an exhibit illustrating the salvaging of a bullion from the *Laurentic* there is visible through a glazed porthole a very realistic model of a D.H.9 with a Siddeley Puma apparently flying through the same sea water as that which submerges the *Laurentic*. Owing to the complete



A Shock for the "Laurentic" divers.

absence of any illumination on the observer's side of the said porthole one could discover no explanatory notice, but from certain details of the surroundings—felt rather than seen—it appears that the porthole is supposed to represent

Model R.A.F. Roadcraft on the Model Service Aerodrome. These are respectively an ambulance, a fire-engine and a staff car, all of the standard R.A.F. Crossley type. The models were made by Crossley Motors Ltd. who are associated with A. V. Roe and Co. Ltd.

one window of the cabin of a passenger-carrying aeroplane and that the D.H.9 is merely an incident in the view. However there may be another explanation. The D.H.9 is quite a good model—incidentally it is a military 9 and not a civil machine.

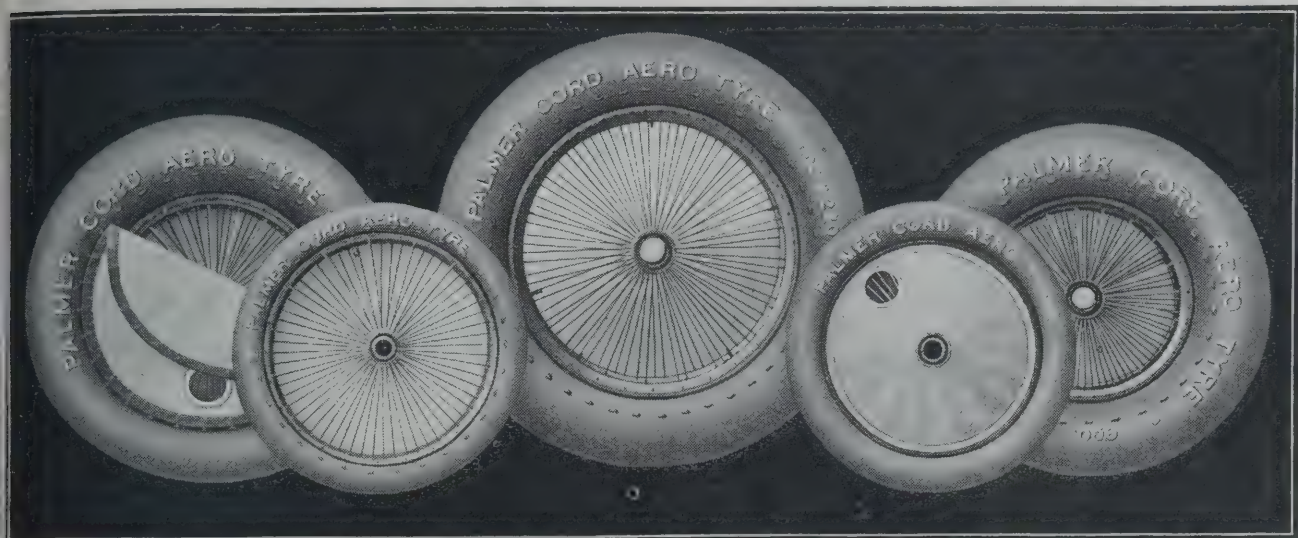
Then there is a model described as of the Continental Airways. This takes the form of an excellently made relief map of the country between London and Paris with reference notices at the side of the case indicating the whereabouts on the map of the better known towns and of the various aerodromes. Above this—at a scale height of some 100,000 ft. or more—a D.H.34 and an R.36, the former some three miles in span and the latter about five miles long, circulate unceasingly between Croydon and Le Bourget. It is somewhat curious to observe that neither attempts to approach the earth at any point in its journeys.

A large scale model is also shown which is alleged to depict Croydon Aerodrome with contemplated improvements. One may express a hope that eventually Croydon may re-



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375 x 55	168	m/m 111.12	m/m 25.4	m/m Central	700 x 100	96	m/m 178.	m/m 55.	m/m 132/46	1000 x 150	201	m/m 185.	m/m 60.32	m/m 125/60
300 x 60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	1000 x 180	148	220.	80.	Central
450 x 60	30	89.	31.75	Central	650 x 125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
575 x 60	21	160.	28.	Central	750 x 125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900 x 230	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
600 x 75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
700 x 75	78	178.	44.45	132/46	800 x 150	82	185.	55.	135/50	1100 x 220	134	220.	66.67	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	"	136	250.	80.	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	1250 x 250	133	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
700 x 100	77	178.	44.45	132/46	1000 x 150	131	220.	66.67	Central	1500 x 300	115	304.8	101.6	Central
"	92	185.	55.	135/50	"	150	185.	55.	Central	"	126	304.8	152.4	Central
"	95	185.	55.	Central	"	167	185.	55.	125/60	1750 x 300	139	400.	152.4	Central
					"	174	250.	80.	Central					

*Wheels Nos. 161, 163 and 211 are of stronger type than the other wheels for 800 x 150 tyres.

†Wheel No. 169 is fitted with Ball Bearings.

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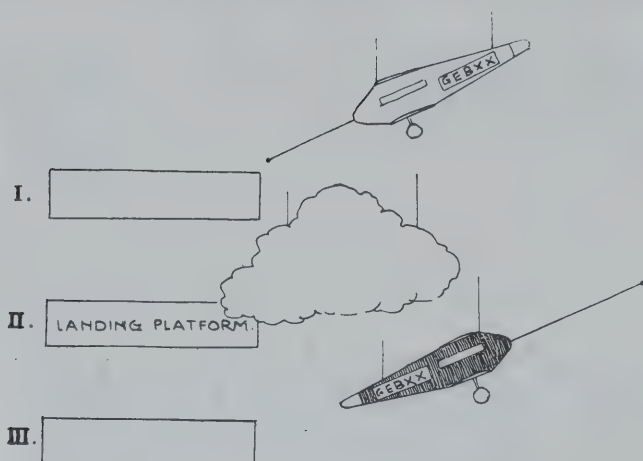
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"Contemplated Improvements" in arrival and departure (Diagrammatic only): (1) About to arrive; (2) Simultaneous Arrival and Departure (Part publication only); (3) Having departed.

semble the model—but it seems a little unnecessary to have identified the model with Croydon at all, though it would serve excellently to represent a well-equipped terminal aerodrome in the abstract.

The aerodrome shown is a square expanse of about five square miles as flat and as smooth as the centre court at Wimbledon, surrounded by country not unlike that to be found round the real Croydon Aerodrome. About one square mile of the surface in one corner is occupied by a sort of garden city which has on its outskirts three or four very large aeroplane sheds and in its centre a great light-house surrounded by an imposing block of buildings.

Somewhat distressingly mixed up with the Garden City is what is evidently meant to be a sort of arrival and departure platform. A small model of a D.H.34 busily flies to and from this platform and this model must be considered to be one of the most amusing and ingenious things that one has seen at Wembley. Those who have good eyesight and who scrutinise the model carefully will notice that there is projecting from its nose a long needle-like spike.

As the model approaches the aerodrome it descends in a distinctly steep dive—with the evident intent of ramming the platform. Just as one is wondering just what the imminent crash is going to produce the incoming machine disappears totally and completely and its place is taken by a departing machine—which climbs at a colossal rate straight away from the platform. A disconcerting chameleon-like change of colour on the part of the 34 accompanies the performance.

The model actually has a fuselage carried between the wings on a pivot. The spike already noted on hitting the platform causes the fuselage to flick round on the pivot so that the nose points in the direction previously taken by the tail, and at the moment the invisible trolley or what-not from which the model is suspended reverses its direction of motion.

The model is quite good as a model of an aerodrome—but the uninstructed watching the goings and comings of the machine must wonder what all the ground space is wanted for.

Another model shows a terminal airship station with two mooring masts, shed, gas-plant, hotel and all other necessary fittings—complete with one airship riding at a mast, and one either just entering or just leaving the shed. In this case no misguided ingenuity appears to have been expended on making the figures work.

It is understood that aircraft and/or aircraft carriers are shown in action in some of the tableaux which are frequently displayed in the theatre of this Pavilion.

It may be added that scattered round the walls of the Pavilion are a large number of most interesting prints and paintings. Of these latter some considerable number show aircraft in service during the late war. The majority at any rate of these will be familiar to those who have visited the Imperial War Museum.

THE PALACE OF ENGINEERING.

Apart from the official exhibits already described objects of aeronautical interest are mostly to be found in the Palace of Engineering. As far as one has been able to discover the Bristol Company are the only exhibitors who have a purely aeronautical exhibit. This consists of one sample each of the Bristol Jupiter, Lucifer, and Cherub engines respectively,

one of the Bristol gas-starter, and of some excellent pictures of Bristol aeroplanes.

In every other case the aeronautical exhibit is merely an incident in the general exhibit of a firm whose activities cover a wide range of engineering work. When the enormous extent of the Palace of Engineering, and the vast number of exhibits therein is taken into account it will be realised that any attempt to discover all the aeronautical exhibits there is a fairly large undertaking. But to anyone who is interested in the technical side of aviation need not therefore be deterred from undertaking the search. However unlikely he may be he will certainly find some of the things he is looking for together with a great many more which if they are not directly aeronautical cannot but fail to be instructive and interesting, and will often be found to have a bearing—possibly indirectly—on the problems of aeronautical engineering.

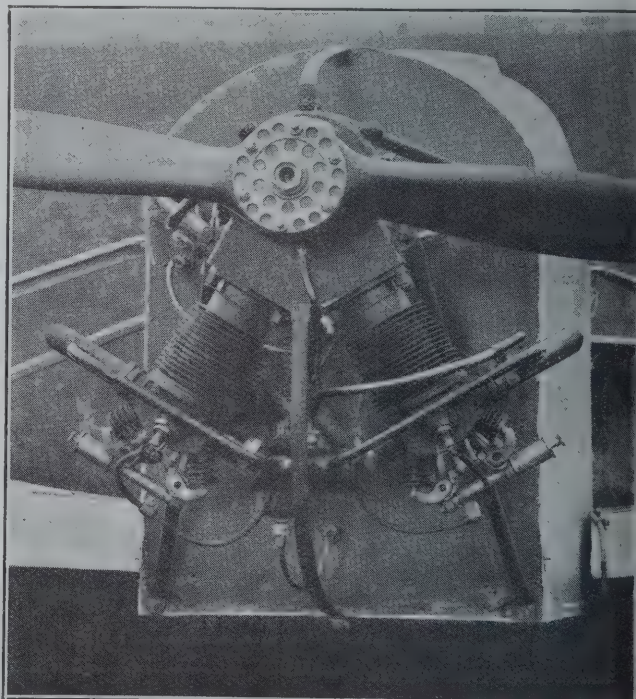
There are of course metal and wood-working tools of all kinds and sizes and many of these do and more could play their part in the manufacture of aircraft. There are curious and ingenious mechanisms and instruments which may, one may not suggest aeronautical applications but which are educational and often intriguing. But to attempt to deal with such cases would be to attempt to describe the contents of the whole building, and therefore one can only attempt to mention those few of the more definitely aeronautical objects which one has been able to observe so far.



Mr. Manning produces a new undercarriage for Wrens.

The most prominent aeronautical exhibit in this section is the English Electric Co.'s Wren which is mounted high above the very large stand occupied by this firm. This is actually Sq. Ldr. Longton's Lympne machine, and still bears its Lympne identification number. Personally one feels that it was an error of taste to gold-line this particular machine—but decoration has not been carried so far as to make it unrecognisable.

(To be continued.)



The Blackburne Tom-Tit engine of 697 c.c. as now mounted on the Parnall Pixie. This engine's price has been more than doubled by the care of the Air Ministry's experts.

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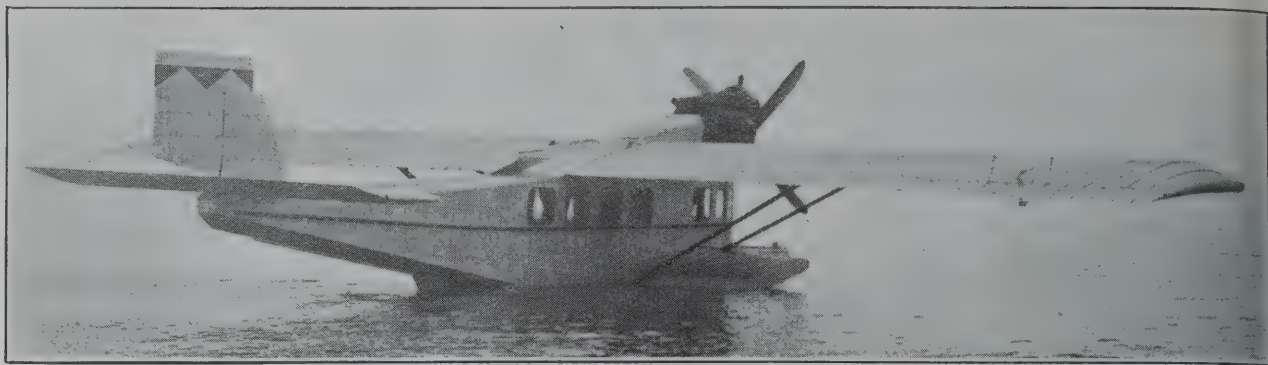
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The Dornier Delphin III (360 h.p. Rolls Royce Eagle).

THE DORNIER DELPHIN III.

This machine, produced in 1923 at the Dornier works, is an enlarged and more powerful version of the original Delphin which has been produced to meet the need for increased speed and load capacity on commercial services.

In general arrangement the older type is followed with fair completeness, the hull fuselage with the large balancing wing-float projection at each side, and the mounting of the engine high up in the nose of the fuselage, being retained. The beak which was added to the first Delphin to protect the airscrew from water and to add to the seaworthiness of the hull has been very considerably increased, and instead of the pilot being carried behind the engine, he is in this type accommodated in an enclosed cabin beneath the engine.

The wings, braced by two struts from the fuselage, are of precisely similar form and construction to those of the older Delphin—steel spars with duralumin ribs and covers being the material. Tail units are of similar construction, and the hull is entirely of duralumin.

The machine can be fitted with any modern engine of 350 to 450 h.p., the Rolls-Royce Eagle, or the Liberty being those most favoured.

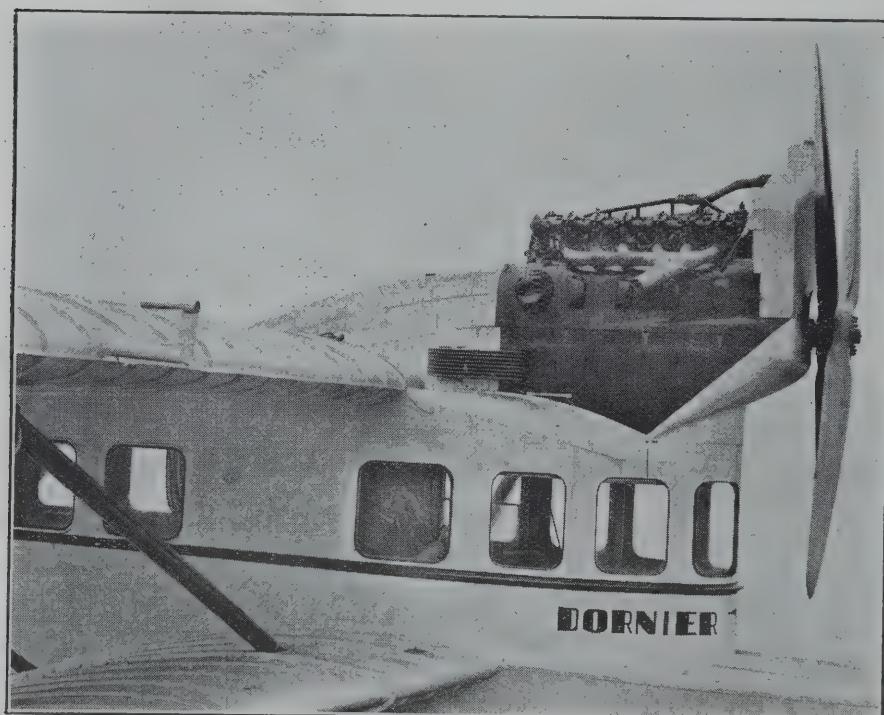
Incidentally wings and tail units of the Delphin III are interchangeable with those of the Komet III—a land machine of very similar capacity.

The machine has behind the pilot's seat a roomy and well-upholstered cabin to seat six passengers.

The example, shown in the attached photographs is fitted with a Rolls-Royce Eagle engine of 360 h.p.

SPECIFICATION.

Span ... 19.3 m. (63 ft. 4 in.)	Wing loading ... 52.2 kg./m ² . (10.6 lbs./sq. ft.)
Length 12.5 m. (41 ft.)	Power loading (400 h.p.)..... 7 kg./h.p. (15.4 lbs./h.p.)
Height ... 2.5 m. (8 ft. 2 in.)	Maximum speed ... 170 km.h. (105 m.p.h.)
Wing area 53.7 m ² . (577 sq. ft.)	Climb to 1,000 m. (3,280 ft.) 8 mins.
Weight empty 1,850 kg. (4,070 lbs.)	
Weight loaded 2,800 kg. (6,160 lbs.)	



AN AWARD FOR AERONAUTICAL ACHIEVEMENT.

The Dayton Section of the Society of Automotive Engineers announce their intention of awarding annually a medal to be known as the Wright Brothers Medal to the originator of the most meritorious contribution brought to the Society's notice during each year. The improvement in question may relate to aerodynamics, to practical constructional problems, to aeroplane power plants, or to accessories which increase the reliability or efficiency of aircraft, but improvements relating to military application, ordnance, or aerial photography, are ineligible. The prize will be awarded only for contributions tending to stimulate non-military use of heavier-than-air craft.

The competition for the medal is international and open to any individual or group of not more than two individuals. Certain officers of the Society of Automotive Engineers are also excluded, and the prize will be awarded rather on the merits of the invention or the achievement described than on the merit of the paper describing it. Papers containing authenticated reports of actual flight tests made on the particular improvement will be regarded with special favour, though they will not be insisted upon and their absence will not compromise the due recognition of merit obvious to a competent award committee.

The award for 1924 will be based on papers describing eligible improvements received by the Dayton Section of the Society up to December 31st, 1924, and these papers will be examined by a committee consisting of Prof. E. P. Warner of the Massachusetts Institute of Technology, Mr. H. M. Crane, President of the Society of Automotive Engineers, together with a co-opted aeroplane designer and a test pilot not yet announced.

It will be recollected that it was at Dayton that the Wright brothers carried out their pioneer work in the development of the aeroplane, and this fact, together with the extremely high standing of the Society of Automotive Engineers, not only in America but throughout the world, should render competition for the medal extremely keen and the securing of an award thereof a distinction of a very high order.

THE DORNIER DELPHIN III.—The

photograph shows the mounting of the Rolls-Royce engine which is obviously extremely accessible—a feature of very great practical importance.

Below the engine is the pilot's cabin with the pilot in place. Behind this two windows of the passenger cabin may be seen.

The wing root balancer surface is also shown at the bottom.

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 30; Tuesday, 35; Wednesday, 24; Thursday, 32; Friday, 26; Saturday, 36; Sunday, 24.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Amsterdam—Berlin: Machines 125, passengers 634, freight 35 tons.

AIR UNION:

Paris—London: Machines 56, passengers 343, freight 8 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 14, passengers 64.

AERO-LLOYD:

Berlin—London: Machines 6, passengers 10.

SPECIAL MACHINES:

De Havilland Hire: Machines 2, passengers 2.

Surrey Flying Services: Machines 4, passengers 2.

Total number of trips by British machines: 131, carrying 638 pas.

Foreign machines: 76, carrying 417 passengers.

Comparative Figures:

For week ending July 27:

Machines, 207; Passengers, 1,055; Crews, 255; Total personnel, 1,310.

Corresponding week, 1923:

Machines, 122; Passengers, 565; Crews, 212; Total personnel, 777.

Corresponding week, 1922:

Machines, 159; Passengers, 366; Crews, 231; Total personnel, 617.

Corresponding week, 1921:

Machines, 101; Passengers, 460; Crews, 126; Total personnel, 586.

Corresponding week, 1920:

Machines, 82; Passengers, 175; Crews, 104; Total personnel, 279.

Corresponding week, 1909:

Machines, 1; Passengers, 0; Crew, 1; Total personnel, 1.

Croydon Notes.

One thousand passengers have for the first time in history been carried across the Channel by air in one week. On Tuesday, July 23, 192 passengers were carried in one day. During the week in addition to the passengers (the actual total number of whom was 1,055) 43 tons of goods were carried.

Fifteen years ago this week, on July 25, 1909, M. Louis Blériot flew the Channel for the first time. He used a Blériot Type XI monoplane fitted with a 25 h.p. Anzani three-cylinder engine. The crossing occupied nearly an hour from Sangatte to Dover and on arrival this side M. Blériot had to fly along the cliffs to find a gap as he was unable to climb high enough to get over the high spots. On alighting in England he crashed and broke the undercarriage.

In our days a speed of 90 m.p.h. is considered slow on the cross-Channel services and instead of one man in the machine as many as 15 are carried. The Channel crossing is now only an incident on the air routes, which total some 1,500 miles, in daily operation.

The Bristol ten-seater has now been fitted up as a freighter. Presumably it is too slow for the passenger services and its times on the routes are well below the present average time. It will be interesting to watch how the Jupiter functions under commercial conditions.

The Surrey Flying Services are doing well with their joy-riding and they are doing a considerable amount of taxi work. Even the Avro was pressed into the taxi service last week-end and made a trip to Ostende and back.

Mr. Perry has been testing various D.H.9s from the Aircraft Disposal Company Ltd. who are still very busy in the shops on various contracts.

Mr. Sargeant's Death.

Mr. A. P. Sargeant, chief engineer to Imperial Airways Ltd., received a blow on the head from an airscrew on Saturday morning and received injuries from which he died the same evening.

About 10.00 hrs. Mr. R. H. MacIntosh was starting for Paris on a W8b. when Mr. Sargeant, who was seeing the machine away, noticed that one of the tyres was flat. He went to it and walked straight into the revolving airscrew which struck him with such violence that the blade split.

There are at the aerodrome guards made which are placed round the airscrews to prevent people from walking inadvertently into the screw, but whether these had been used or not (one does not know whether they were) it would have made no difference as they had been (or would have been) removed at the moment as the machine was on the point of departure.

Everyone who has anything to do with aircraft knows how easy it is to walk almost into an airscrew without thinking and no blame can attach to anyone for this accident.

Mr. Sargeant was an exceedingly competent engineer and was very much liked at the Aerodrome. Prior to his appointment to Imperial Airways Ltd. he was chief engineer to Daimler Airway and was largely responsible for the efficient operation and maintenance of the machines and engines that service. When the heads of the Daimler Airway were chosen to operate the new combine they naturally chose Mr. Sargeant who had served them so well in the past to fill the same post. He is a great loss to commercial aviation.

Commercial Reliability.

As demonstrating the reliability of the modern aero-engine it is interesting to note that one Napier Lion aero-engine installed in a D.H.34 now in use by Imperial Airways Ltd. and previously by the Instone Air Line, has recently completed 115,000 miles and is still in service.

This distance has been mainly flown on the London-Colony route on practically continuous daily service.

An Aerial Derby Entrant.

It was stated semi-officially in THE AEROPLANE last week that the Aerial Derby for 1924 had been cancelled because there were no entrants. This is literally true because no machine can have a race between one machine. But, to their everlasting credit be it noted, the Gloucestershire Aircraft Ltd. of Cheltenham actually had ready for the race a proposed racing machine fitted with a special Napier Lion engine. It is extremely rough luck on the firm that nobody else wanted anything for them to beat.

Incidentally one holds that as a matter of sportsmanship the Gloucestershire Company's machine ought to be allowed to fly over the course and should be awarded whatever prize would have gone to the winner. There does not happen to be any Aerial Derby Trophy on which the winner's name is inscribed year by year, but certainly it ought to be recorded in the archives of the Aero Club and in the history of the Aerial Derby that in 1924 the Gloucestershire Company was ready to compete.

Reasons for Avoiding the North Pole.

Some time ago a scheme was projected to navigate an airship to the North Pole. It is recorded that the instigator when collecting his crew endeavoured to enrol a well-known one-time member of the airship group. "The North Pole seems a pretty poor sort of place to want to go to," replied the officer approached. "It's very cold and, besides, we don't know anyone there!"

The instigator then suggested fitting out a flight around the World. "Of course," said he, "we should probably run out of petrol at Japan and then we would crash, but at least course it would show that airships could go a long way and draw attention to the lack of facilities and generally be good."

The one-time airship officer however thought that he would prefer to remain large and whole than be a martyr to science and he stated in no uncertain voice that he disapproved of committing aerial hari-kiri on the doorstep of Japan, so he declined the offer.

PERSONAL NOTICES.

DEATH.

GLEN.—On July 17, suddenly, at Bettws-y-coed, Wales, of heart failure. Flt. Lt. John McGowan Glen, M.C., R.A.F., only son of the late J. Glen, Junior, of Glengowan, Calceruix, Lanarkshire, and of J. Glen, Stockbridge, Mass., U.S.A., aged 28.

MARRIAGES.

DAVIES—COLES.—On July 22, at Milton, Robert E. J. L. Davies, D.F.C., eldest son of Canon and Mrs. Davies, of St. Asaph, and Dorothy Mary, only child of Mr. and Mrs. R. E. Coles, of Milton.

STEPHENSON—SIMMONS.—On July 22, Capt. William Stephen Stephenson, M.C., D.F.C., etc., to Mary French Simmons, youngest daughter of William Simmons, of Springfield, Tennessee, U.S.A.

BIRTHS.

BURRIDGE.—On July 19, at 69, Fonnereau Road, Ipswich, Great Britain, wife of Flt. Off. E. A. Burridge, R.A.F.—twin daughters.

GANTHONY.—On July 22, at Ember Lane House, Esher, to Dr. Irene, wife of Sydney Ganthony (late R.A.F.)—a daughter.

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Edited by
C. G. Grey

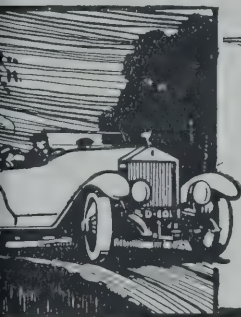
Vol. XXVII. No. 6. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.]

ON THE WAY ROUND.



THE BRITISH GLOBE-TROTTERS:—Sqdn. Ldr. Maclaren, Flg. Off. Plenderleith, and Sergt. Andrews, and friends, with the Vickers Vulture (Napier Engine) at Akyab, Burma.

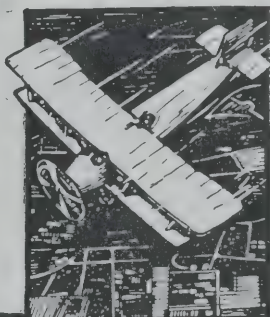
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A Message from the Oxford Arctic Expedition.

THE following message received by A. V. Roe & Co., Ltd., from Mr. George Binney, the leader of the Oxford Arctic Expedition, needs no comment. It refers to an AVRO Seaplane (fitted with 180 h.p. Siddeley-Lynx engine) and was transmitted by wireless from Spitzbergen.

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ON TEN YEARS AGO.

Ten years ago, on Monday August the Fourth 1914, War was declared between the British Empire and the German Empire. These notes are being written on that day of 1924 and one feels that this is the moment when it is meet and proper to look back over those ten years and to look a little towards the future.

The War came as a shock to most of the people of this Empire, but to the King's fighting Services it came as the great opportunity for which they had been preparing for many years. Every thinking soldier and sailor knew that we had to fight Germany, if only to prove which of the Teutonic peoples were to lead the World in the future. For ten years or more the Navy had known that its only serious opponent was the German Fleet. And for five years at least the Army had known that the British Expeditionary Force was designed and organised as a complete unit to operate on the left flank of the French Army.

On July 18, 1914, a Review of the Fleet was held at Spithead, and at that review appeared twenty seaplanes of the Royal Naval Air Service. The review proved to be in truth the mobilisation of the British Navy by Mr. Winston Churchill, then First Lord of the Admiralty, and by Prince Louis of Battenberg, then First Sea Lord, in full knowledge of the fact that war was inevitable. Prince Louis died, broken in health, because the crazy anti-Germanism of our politicians and press condemned him to watch the war as a civilian and prevented him from leading at sea the Fleet which he had taught to serve his cousin the King. Mr. Churchill, after doing great work in the War and after having saved both the Flying Services by his policy before and in the early days of the War, is to-day an unemployed statesman, but he is young enough to return refreshed by his rest to do still greater work in the next war.

The mobilisation of the British Expeditionary Force began several days before war was declared. Its trusted leader, Sir James Grierson, died in the first week of war. And it was long before its great man, Sir Douglas Haig, and such line Generals as Allenby, Cavan, and Plumer came into their own. With it were mobilised the four little squadrons which composed the Royal Flying Corps. No. 1 Squadron R.F.C. was then Balloons and Kites and only became an aeroplane squadron some months later.

The four squadrons which actually went to France with the B.E.F. were,—No. 2 Squadron from Montrose, commanded by Major Burke who was afterwards killed commanding an infantry battalion; No. 3 Squadron from Netheravon, commanded by Major John Salmond, now Air-Marshal K.C.B., who took over the command from Major Brooke-Popham, now Air Vice-Marshal and Commandant of the Staff College, who went to France in charge of R.F.C. supplies; No. 4 Squadron from Netheravon, commanded by Major Raleigh, who was afterwards killed in an aeroplane accident; and No. 5 Squadron from Farnborough, commanded by Major J. F. A. Higgins, now Air Vice-Marshal commanding all British Forces in Iraq. The whole R.F.C. in the field was under the command of Brigadier-General Sir David Henderson who has died since the War.

The mobilisation of the R.F.C. squadrons and of the R.N.A.S. denuded the country of aeroplanes, and all sorts of queer machines belonging to civilians were pressed into service for the training of new pilots. The Central Flying School at Upavon (a joint Navy and Army affair) under Captain Godfrey Paine, R.N., carried on its work with a few old box-kites which were useless for war. And the Assistant-Commandant, a certain Major Hugh Trenchard, was sent to Farnborough where he was given command of a row of empty sheds, two or three officers who were unfit for foreign service and a few N.C.O. clerks. With this material he was set the task of building a new Flying Corps. Now he succeeded may be judged by the fact that when the Armistice arrived the Royal Air Force amounted to 30,000 officers and 300,000 men and held complete command of the air, and that to-day after nearly six years of Peace we still have the strongest and most efficient Air Force in the World.

A PROPHECY.

In the first issue of THE AEROPLANE which appeared after

the outbreak of war, bearing the date August 5, 1914, before any Censorship or Defence of the Realm Act existed to interfere with freedom of speech, one expressed a few opinions which may now bear repeating exactly ten years to the day after they were written. They read thus:—

"At this moment of writing it appears that this country is inevitably committed to take its part in the greatest war the world has ever seen. Thanks to the machinations of politicians who pose as statesmen the Powers find themselves grouped in quite the wrong way. Our alliance with France is as it should be, but that the two leading civilised nations should find themselves allied with Russia against Germany and Austria is altogether unnatural. . . . The alliance with Russia is against all reason. 'Scratch a Russian and you find a Tartar,' is an ancient proverb. Scratch a Tartar and you find a Chinaman is its logical sequel. The Slav is the real 'Yellow Peril,' for the Slav is at bottom an Asiatic. Our alliance with Japan was an equally unnatural contract, but it was good diplomacy, for without it the Russo-Japanese War would never have taken place, and Russia would have been stronger than she is to-day. But for that war our Indian frontier would have been in greater danger than it is. If Russia comes out on top in this present war does anyone think that her gratitude to us for our support will cause her to keep her hands off India when she can spare men from her German frontier? Those who know the Russo-Indian problem will remember the admonition of the old shikari in Mr. Kipling's famous allegory—'Make not your peace with Adam-zad, the bear that walks like a man.'

"However, nothing on God's Earth can excuse Germany's unprovoked attack on France, and we have got to see France through her trouble on that account. . . . A smashed Germany is not as good a bulwark against the advance of the Slav peoples as a solid Germany backed by France and Italy would be, but perhaps a smashed Germany may be less dangerous than a top-heavy Germany ready to fall at any moment on us and our friends the French. Therefore, in the name of common sense let us have at it, and smash Germany thoroughly once and for all. . . . The German Empire dissolved into its component parts may still be a useful barrier, and not a danger. It is Prussia, as usual, who is making a beast of herself, and it is Prussia rather than Germany whom we have to fight. Of course, our cause is an unjust one, but that makes no difference. To quote the cynic's verse:—

'Thrice armed is he who hath his quarrel just,
'But more so he who gets his blow in fust.'

THE RUSSIAN DANGER.

From those views of ten years ago one has had no reason to depart in these later days. But since then one has learned something more about ethnology. One has learned that the Slav is only a minor factor in Russia, though the name has been loosely used for decades to include all Russians. It would be more proper to call the Russians Mongoloids or square-heads and more proper still to call them Japhetics—as opposed to the Semitic peoples or long-heads who populate practically all Europe West of Warsaw.

Also one has learned that the Prussian is a square-head and belongs to a Japhetic tribe which has imposed its will by war on the decent home-loving Germanic tribes. And to that extent our fight with Germany was just, in that we were fighting Japhetic power though not Japhetic people.

Apart from that the opinions expressed have been fully justified. Russia let us down and betrayed all her Western Allies. To-day, as one stated in this paper a year or more ago though the daily press only discovered it last week, Russia and Japan have a secret alliance which at bottom is an alliance of the Yellow (or Japhetic) Race against the White (or Semitic) Race.

To-day Soviet Russia has 60,000 troops ostensibly employed in conquering Turkestan or rather the part of it which is chiefly populated by a Semitic tribe which is actually composed of Bokharan Greeks. When it is reduced to submission the old Russian road to Afghanistan and India along the old strategic railways will be again open to a Russian

advance. To-day Soviet Russia is intriguing in Persia and in Afghanistan as did Tsarist Russia before 1914. In fact Soviet policy in the East is at least as Imperialistic as was Tsarist policy, if not more so.

Soviet Russia has the biggest and most harshly disciplined army in the World. And she aims at having the biggest air force.

Soviet troops are being massed on the frontier of Bessarabia, which Roumania occupied in 1919 after the Germans had left Roumania and while Russia was still in a state of chaos. Soviet troops are also ready to invade Poland.

When all is ready for their advance there will be nothing to stop them till they reach Germany, for the barrier of comic-opera states which France is financing and arming at our expense from the Baltic to the Adriatic will do nothing to stop the advance of infantry and cavalry which are very nearly the finest in the World when properly armed and led.

In the War 1914-18 the Russian troops were not led but merely commanded in the main by academic soldiers, school-trained in an antiquated tradition and individually the descendants of a degenerate Nordic aristocracy. In the next war the Soviet Army will find its own leaders of the true Tartar fighting stock, descendants of Attila, Genghiz, and Timor, but with a modern education, men of the stamp of Trotski, a Jew by religion but a pure square-head Khazar Tartar by blood, without a sign of Semitic, Hebrew, Israelitish or Judaic ancestry.

Trotski is too old to be the great leader, and he is a politician not a soldier. But the time has now come to watch carefully the doings of Soviet generals in Turkestan and Bessarabia for the signs of a Russian Napoleon.

To-day in 1924 we are seven years from the outbreak of the Russian Revolution in 1917. That is to say we are where the French Republic under the Directoire was in 1796, after the Revolution of 1789. And it was in 1796 that an unimportant young French general named Buonaparte (whose mere name meant nothing to the old Army officers in the London clubs of that day) beat an inefficient Austrian army out of Italy. It will be well to watch the Red Army.

GERMANY'S TASK.

A few weeks ago one had a long and interesting talk with a young and intelligent German gentleman who served his Emperor as a fighting aviator during the War 1914-18 in Russia and France. He agreed that Soviet Russia intends to invade civilised Europe but seemed distinctly pessimistic as to Germany's ability to stem that invasion. He believed that the German working man would go Bolshie and join the invaders, or at any rate would let them come through without opposition.

One pointed out to him that when the invasion began the cities of Germany would be flooded with German refugees from Roumania, Galicia, Poland, and Silesia, just as they were flooded with refugees from East Prussia during the brief success of the much vaunted Russian "Steam Roller" in 1915, and that these refugees would bring authentic evidence of the horrors perpetrated by the advancing Tartar hordes alongside which the worst atrocities which we alleged against the Germans in France and Belgium would seem but the play of children. And one suggested that then the home-loving German workman would again fight for that Fatherland which he preserved from invasion against twenty-two Allied Nations from 1914 to the end of 1918.

Our German friend agreed, but argued that although Germany had plenty of trained soldiers and a fair quantity of small arms and was now educating the rising generation in a proper spirit of patriotism, Germany had no artillery and no aircraft and so could not stand against a horde equipped with side-arms only let alone with such mechanical equipment as the Red Army will possess four or five years hence.

To this one replied that we in this country would supply a British Expeditionary Force, including an Air Force, which would stiffen the German defence while the German reserves became accustomed to the artillery and aircraft which we and the United States would supply. And that afterwards we and Germany together would hold up the advance till the German factories were able to produce enough war material to equip armies which would finally defeat the Yellow people. But one warned him that Germany would not be able to depend on help from the States after the first Yellow rush had been stopped, because then the States would be too busy fighting Japan in Siberia, from bases on the Pacific Coast, and in the Dutch East Indies from our base at Singapore.

OUR OLD ALLIANCE.

The German agreed that such would be the proper strategic scheme of the war, but he doubted whether the English

would fight alongside German troops. One reminded him that we had done so at Waterloo and in Marlborough's campaigns and that we had never disliked Germans individually and that as a nation we had never quarrelled with Germany as we had quarrelled with France. Whereafter he seemed somewhat consoled and remarked that if only the German people had some such assurances from the British Government there would be much less danger of Bolshevism in Germany.

Of course it is unlikely that such assurances will be given publicly. But knowing a little of the workings of the political mind one would not be at all surprised to discover some years hence that there is already a friendly understanding between our Labour Government and the German Government. And one would be still less surprised to discover that there is a private military understanding between our War Office and our Imperial General Staff on the one hand and the German General Staff on the other hand, much as our General Staff had worked out its schemes with the French General Staff long before anybody ever heard of the *Entente Cordiale*. Few people know that the War Office is generally anything between five or ten years ahead of the political mind in matters of International Politics. And one may assume that the Air Staff, working so closely as it does in alliance with the War Office, has its schemes advanced equally far.

THE GREAT WAR.

Given adequate support by us Germany can hold up the Soviet Invasion from the Baltic to the Alps. No troops in the World can get through Switzerland from the East. And God having considerably placed the Alps where He did, the French and Italians can hold the line from the Alps to the Adriatic, so that French and German troops can fight on the same side without fighting side by side.

There you have the general scheme for the Great War. When it comes those who call the brief struggle of 1914-18 the Great War will realise that it was only, as the Chinese mandarin called it, "a tribe-fight of Western Barbarians." When one compares it with the great wars of the past one sees the foolishness of calling a four-year fight a great war. A good many people were killed, but not so many as died of the influenza plague in 1918-19. And now that we have had six years of peace we can regard those four years of war as something like a proper perspective.

Many of us have lost relatives and friends whose memories will be always dear to us. But they died better than if they had merely died worn out in the battle of a commercial life. It is better to die making history than it is to die making a fortune for somebody else to squander.

TO THE OLD ARMY.

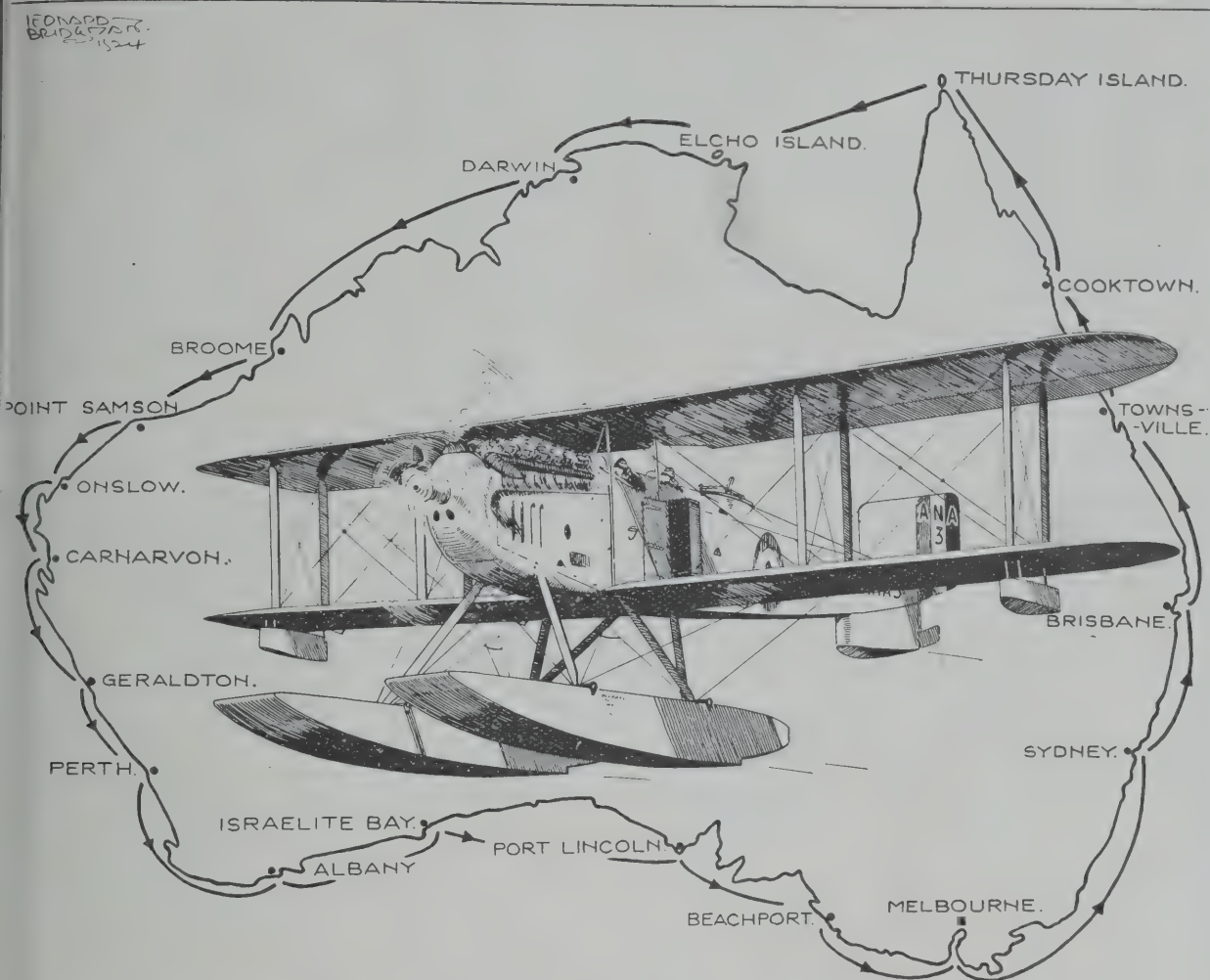
War is a good thing for a race which has been made by war. In the *Morning Post* of August 4, worthily commemorating what the British Army did in the War 1914-18, the Honourable John Fortescue, the greatest historian of our Army, has written thus:—

"If the war has done nothing else for us, it has at least banished all misgivings concerning our deterioration as a fighting race"

"Never must we forget what we owe to the old army, the Old Contemptibles, as we fondly call them. Never must we forget that they were subjected at the very outset to the severest of all trials in war—a long and hasty retreat before overwhelming numbers. Rearguard actions and flank-guard actions which now seem petty and negligible compared with the vast operations of later days, were then of supreme importance. Single corps, single divisions, single brigades, even single battalions, were setting up a standard of conduct which was to govern and exalt every officer and every man of the later levies, and furnish a high ideal to the troops from overseas. And, when the Old Army crowned its work by the stubbornness of its defence at the first battle of Ypres, and perished in this supreme effort, it had done greater work than it had dreamed of, for it had made the victorious spirit, which meant the winning of the war."

"And the British brains showed themselves as good as the British hands. British inventors surpassed the Germans, and British military organisation within a couple of years left the Germans far behind. In the new element, too, the air, British aviators displayed a skill and a daring which in a few months built up imperishable traditions for the Air Force."

"Yet it is the fashion now, as it was after Waterloo, to dismiss the war as an unsavoury subject, to say that it was unnecessary, and to prate of peaceful settlement of all national differences in future. What have we got out of the war? is a question petulantly asked and impatiently answered. Well, in spite of the blunders and disasters which are inseparable from all human transactions, we have assured ourselves that we can, without fear, court comparison with our neighbours both as fighters and thinkers; and this was a



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"The performance of the machine was absolutely excellent throughout. I have had a good deal of experience of seaplanes but this has far surpassed anything that I had expected. You know the old bogies about sun-warping of wings, yet, although the Fairey encountered heavy rains and was then very severely tested by going suddenly into the tropics, the wood spars and general rigging stood up to it perfectly. During the whole flight we never touched a wire on the rigging. Fabric, controls and everything else connected with the machine were perfect."

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matter upon which some of us ten years ago had our misgivings.

"Can any nation derive any real benefit from any war except the proving of its strong and weak points? War is the supreme test of a nation's moral and physical stability; and if we be tried by this ordeal and not found wanting we may be humbly and not vaingloriously thankful. We learned for a time at any rate to make sacrifices for our country and to appreciate the sacrifices that others made for us; and, if glory make no appeal to us, we have at least not forgotten honour, and are striving to pay at least some of our debts. . . .

"We did accomplish great things, things worthy of a great and highly disciplined nation. Why should we seek to belittle them merely because they were the supreme efforts of a people at war? Of political intrigue and disillusion I know nothing; for economic crisis and disadvantage I care nothing. A nation in arms is all in all.

"It is the letter of warfare, dividing individual against individual, that killeth; it is the spirit of warfare, uniting a people, that maketh alive."

CONCERNING THE LIGHT AEROPLANE COMPETITIONS.

The Supplementary Regulations for the Two-Seater Light Aeroplane Competitions which are being held at Lympne from Sept. 29 to Oct. 4 have now been issued by the Royal Aero Club.

The Competition is open to any aeroplane the total piston displacement of the power plant of which does not exceed 1,100 c.c. The aeroplane must be a two-seater fitted with dual control and an air speed indicator must be visible from either seat. The whole machine including the engine and magneto must have been designed and constructed in the British Empire. Presumably a designer of an aircraft if he should be visiting Paris or any other foreign city must not have while there a brain wave or his machine will subsequently become disqualified. They should bear in mind the precedent of the Chantry Bequest and Sir W. Orpen's famous "Chester."

The ingredients of the fuels must be commercially obtainable in bulk. One suggests that the Royal Aero Club should further insist that the fuel should be purchased at a local garage and should not be a mixture made up specially for the competitions by the petrol companies. What the ordinary user of a light aeroplane wants to know is how the machine functions on ordinary aviation or No. 1 spirit. It would be interesting to get an assurance from the various petrol companies as to exactly what spirit is being supplied. Also each petrol firm should submit to the Club representatives samples of the petrol and the benzol or other fluid which they are providing and guarantee that the remainder is up to or down to sample. This should then be examined by someone who is agreed by the petrol people themselves to be entirely disinterested.

The entrant and pilot must be British subjects. In a way this is rather a pity as it will bar the French and Belgian elements which have swelled the entries at previous competitions.

The load to be carried exclusive of fuel must be made up to 340 lbs. which includes the weight of the pilot and passenger if carried. If there be no passenger the balance of the total weight required must be carried in the spare seat. The carrying of a passenger is optional except in the later discussed eliminating test (B) in which no passenger may be carried.

Competitors must comply with the Air Navigation Regulations in force subject to any concessions which may be made by the Air Ministry for these competitions. One such concession will be that Government registration marks are not necessary for the competitions, but each aeroplane will be allotted a number which must be painted in black on a white surface on each side of the rudder and on the lower surface of each of the lower main planes. These numbers must be as large as the surface permits.

Free accommodation for competing aeroplanes will be available at Lympne Aerodrome from Wednesday, Sept. 24.

FLYING HOURS.

Flying in the competitions will begin each day at 10.00 hrs. and will end at 18.00 hrs.

Competitors will not be observed or timed after that hour unless the hour is altered by the Stewards.

In all cases the number of circuit flights will be counted up to the last circuit completed at the closing hour.

The Stewards may prohibit any flying in the competitions if in their opinion the weather conditions justify such action.

The Stewards may extend the flying time in the event of any loss of time on account of unfavourable weather.

Undoubtedly it is a good idea not to start the competitions before 10.00 hrs. The officials of the Royal Aero Club in past meetings have always looked jaded and worn by the end of the meeting owing to thoughtless competitors com-

THE PART OF THE ROYAL AIR FORCE.

The Royal Air Force inherits the tradition of the Old Army of which these words were written. It is commanded to-day by men who were at the outbreak of war ten years ago as majors and captains and subalterns of that Old Army who in a few dangerous months saved Europe from the domination of the Prussian square-head. In the Great War of 1914-18 it will be not merely our First Line of Defence, it is officially to-day, it will be our First Line of Attack spear-head of the British Empire.

Ten years hence, if one be permitted to continue for long one's work for the Air Force, one hopes to see on the wings of young friends who are now Flying Officers and Flight Lieutenants and Squadron Leaders commanding Wings and Groups and Divisions in a great and righteous war where we and our Nordic relations in Western Europe will be defending the purity of our race against the Eastern Barbarians. May those to whom this great trust is committed live worthily of those who went so gallantly to their death ten years ago.—C. G. G.

pell them to get out of bed at dawn, and even the most robust have been worn to a shadow. At any rate the man who wishes to buy a light aeroplane will want one that will fly in the weather conditions prevalent during the day. The sport of flying light aeroplanes can never be popular as long as the owners have to get up at the crack of dawn.

The same aeroplane and engine must be used throughout the competition but certain repairs and replacements will be allowed. Parts of the engine which may be changed are carburettors and parts of carburettors, airscrews (which must be of the same design, construction and dimensions as original), sparking plugs, valves and springs. If a competitor may change his carburettor for one of another make he should he not also change to another make of airscrew?

Parts of the aeroplane which may be changed are wheels, tyres, tail skids, wing tip skids, and details of fairing. A competitor discarding part of or otherwise altering the aeroplane during the competitions so that it differs in any way from that which was presented to the officials in the first place will be disqualified. The pilot must not be changed during the competitions except with the consent of the officials.

It will be remembered last year that there was some discussion owing to the fact that the Parnall Pixie was allowed to change its wings from large area to small area and back again, whereas the Avro was forbidden to do so. The reason for this was that the Parnall had been entered as two separate machines, the one with the big wings and the other with the small, whereas the Avro had not. Furthermore, James and Mr. Piercey were allowed to change about on the various machines because they had both been entered as pilots of each machine.

Competitors are reminded of these facts this year so that if necessary they can enter more than one pilot for one machine and that any machine which it is intended to alter during the competition must be entered as a separate machine in its altered form.

The entry fee is £20. This fee together with the entry form must be received by the Royal Aero Club not later than Aug. 22. Later entries will be received up to 12 noon on Sept. 5 at a late entry fee of £40. The Royal Aero Club in the interests of safety reserves to itself the right to refuse any entries and/or prohibit the flight in the competitions of any competitor if it considers the flight would be dangerous.

The posting of decisions and instructions on the official notice board on and after Sept. 24, 1924, constitutes official notification to all competitors who are responsible for acquainting themselves with such decisions and instructions.

THE ELYMPNEINATING TRIALS.

A most important innovation in this year's competition is the inclusion of eliminating tests, which in view of the locality should of course be spelled "elympneinating." The trials will take place on the two days previous to the competition.

The Royal Aero Club states that these tests will be held on Saturday, Sept. 27, and will be continued on the following day. Presumably it feels that its collective conscience is saved by the use of the term "the following day" instead of saying "on Sunday, the 28th." It is a hopeful sign of the salvation of this country when one finds an official Government competition being held among other days on a Sunday, even though those promoting it have the courage to say so in so many words. Or perhaps it is a case of discretion being the better part of valour.

The eliminating tests will be divided into two parts (A) and (B). (A) consists of dismantling, housing and re-erecting the machines. For this test the aeroplane must be presented

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to the officials fully erected. It must then be dismantled or folded in such a manner as to permit of its being completely transported in one journey without the use of any extraneous tackle over a distance of not more than 25 yards and placed in a shed ten feet wide. It must then be taken out of the shed and re-erected.

Two persons only will be allowed to handle the aeroplane throughout this test and the time occupied must not exceed two hours. No special devices will be allowed unless carried as part of the equipment of the aeroplane in flight during the competition.

One suggests that this very important part of the competition should carry marks as to speed of dismantling and erection. It is obviously a better proposition if the machine can in two minutes have its wings folded and be pushed along the road, as was the Vickers Viget last year, than that half-an-hour or so should be wasted in undoing nuts and bolts, etc., and taking the machine to pieces.

The second part (B) will be a demonstration of dual control. This test will consist of two separate flights each of one complete lap of the course, at the termination of each of which one figure of eight must be flown within the boundary of the aerodrome. The pilot must be alone and must occupy alternately the two seats in the aeroplane. Presumably he must land between the two flights and will not be allowed to change seats in the air.

These tests (A) and (B) must be carried out in this order and must be passed to the satisfaction of the officials before any flights are made in the competition proper.

Aeroplanes must be presented to the officials fully erected for the eliminating tests at 10.00 hrs. on Saturday, Sept. 27, 1924. Aeroplanes not so presented will be debarred from taking part in the competition. These tests must be completed by 18.00 hrs. on Sunday, Sept. 28. Aeroplanes not having done so will be debarred from taking part in the competitions.

These eliminating trials are undoubtedly a very great improvement over last year's conditions. In last year's competitions and in the gliding tests at Itford Hill machines were built *in situ* during the week and the gliding prize was won by a machine which did not appear until the last Saturday afternoon. And last year for a short time it seemed possible that a machine would win which did not arrive until halfway through the week. Clearly prize-winners should fly frequently during the week and should not be allowed a flash-in-the-pan success.

The only unfortunate thing about it is that it may debar the comic-tragic element which has been present at the last two meetings. It was fully expected that a caricature combining the salient points of the Wren and the A.N.E.C. would appear. Perhaps after all it may still come for the pleasure of being eliminated as a sort of sacrifice to atone for the Sunday business.

In order to be eligible for any of the prizes offered competitors must complete at least ten hours flying in the various tests during the period of the competitions.

THE PRIZE LIST.

The prizes consist of £3,000 presented by the Air Council, £500 presented by the Duke of Sutherland, £150 presented by the Society of Motor Manufacturers and Traders, £150 presented by the British Cycle and Motor Cycle Manufacturers' and Traders' Union, and £100 presented by Captain C. B. Wilson, M.C.

These will be allotted as follows:—The First Prize of £2,000 presented by the Air Council and the Second Prize of £1,000 presented by the Air Council. The Prize of £2,000 will be awarded to the entrant of the aeroplane which shall have obtained the greatest aggregate of marks in the schedule of tests and the prize of £1,000 will be awarded to the entrant of the aeroplane which is placed second.

The prize of £500 presented by the Duke of Sutherland will be awarded to the entrant of the aeroplane which shall have obtained the greatest aggregate of marks in the getting-off and pulling-up competition and the second prize of £100 presented by Captain Wilson will be awarded to the entrant of the aeroplane occupying second place in these tests.

The prize of £300 presented by the S.M.M.T. and the B.C. & M.C.M.T.U. will be awarded to the entrant of the aeroplane which flies the largest number of complete circuits of the course during the period of the competitions with a minimum of 400 miles. Circuits flown in other competitions count towards these prizes. The same aeroplane and engine must be used throughout this competition and parts will be marked to ensure this.

THE COMPETITION FLIGHTS.

The tests for the main prizes will be divided into three parts:—(1) Range of speed (a) high speed (b) low speed. (2) Getting-off. (Presumably this means taking-off and not the evening performance of the personnel in the neigh-

bouring towns.) (3) Pulling-up. (This again refers to aeroplane and not to the subsequent actions of the personnel.)

The high speed test will be carried out over a course, two separate flights of approximately 75 miles each. Interval will be allowed between the two flights for tank in fuel and oil only.

All flights will be made over a triangular course of approximately 12½ miles. Presumably the same course as last year will be adopted.

The turning points will be marked by white crosses on the ground which each competitor must pass on his left at a height of not more than 500 feet and at a range sufficiently close for his number to be easily identified.

The same line will be used for starting and finishing. Competitors will be at liberty to take-off from any point on the aerodrome but will be timed from the first time they cross the starting line in the air, keeping the aerodrome turning point on their left. There is no restriction as to the number of attempts allowed in the high speed test provided such flights do not interfere with the carrying out of other tests.

Competitors must hand in written notice to the official office at least half-an-hour before each flight is made. Competitors not starting within fifteen minutes of the time stated in the notice may be required to put in a further notice.

In the low speed tests the aeroplane will be timed up and down a straight course of not less than 500 yards. The width of the course for this next event will be 25 yards and will be indicated by red flags placed on each side. The aeroplane will be considered as being on the course provided a part of it remains within the boundaries indicated by the red flags. No marks will be awarded if the aeroplane flies outside the limits of the course.

The course must be covered twice in each direction in each flight at a constant height of not more than 20 feet. The speed of each of the four flights will be taken and the average of the four speeds will constitute the performance.

Competitors may take-off from any point on the aerodrome but they must enter the low speed course within fifteen minutes of their starting time. On completing the course after each of the first three flights the competitors must turn and immediately re-enter the course. On completing the test the competitors must land so as not to interfere with other tests. The Stewards will be the sole judges as to whether any time has been wasted unnecessarily between flights on the course and may rule that no marks may be awarded.

It seems that this item should furnish quite a little harvest of crashes and the Club is well advised to limit the height to 20 feet as the chances of a pilot being hurt in such a crash are not very great with a light aeroplane.

No marks will be awarded unless the high speed is greater than 60 miles an hour and the low speed is less than 40 miles an hour. The marks will be awarded for range of speed expressed as a percentage of the low speed. For instance, if the high speed is 60 miles an hour and the low speed is 40 miles an hour the range of speed is 20 miles an hour and the percentage range of high speed and low speed is 50 per cent. The basis of marking will be that there will be no marks for a percentage of 33-1/3 per cent. or less and 8 marks for every one per cent. over 33-1/3 per cent. and parts of one per cent. *pro rata*.

GETTING-OFF AND PULLING-UP.

The getting-off test will consist of a take-off starting from rest and flying in a straight line over a light barrier 6 feet high. The pilot may select his own distance from the barrier and marks will be awarded according to the distance from the starting point to the barrier on the basis of one mark for every yard by which the distance is less than 450 yards. The wheels of the aeroplane will be placed on the line of start selected by the competitor who will make standing start. No launching devices or suddenly removed chocks will be permitted for the test. Competitors must land immediately after the attempt.

The pulling-up test will consist of a straight landing over a barrier 6 feet high. Marks will be awarded according to the distance from the barrier at which the aeroplane comes to rest, on the basis of one mark for every yard by which the distance from the centre of the barrier is less than 100 yards. The engine may be shut off before crossing the barrier. Any form of braking device may be used provided that it is carried throughout the competitions. The distance shall be measured from the centre of the barrier in a straight line to the furthest point of contact of the aeroplane with the ground. Only normal straight landings will be measured. In the event of damage to the aeroplane which in the opinion of the Stewards would prevent further flight no marks will be awarded.

Presumably stunt and side-slip landings are barred.

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though it will be rather difficult to draw the line as to what is and what is not a stunt landing.

OFFICIAL RULINGS.

The Stewards will decide from day to day the time allotted for the tests and their decision will be announced on the official notice board at 09.30 hrs. each day, together with the order and time of starting.

All competitors will be allowed the same number of attempts.

Any competitor failing to start within five minutes of his official starting time will not be allowed to start and the time will count against him.

The Stewards may allow additional attempts in the same order as time permits.

Competitors or their pilots purposely flying over the public enclosure or outside the regular course without permission of the Stewards will be liable to disqualification and suspension and the Stewards have the right to prohibit any flying when in their judgment such flying is likely to be dangerous to the public or other aviators.

THE GLOBE TROTTERS.

THE BRITISH EXPEDITION FAILS.

From July 24 to Aug. 1 various reports stated that Sq. Ldr. MacLaren was stormbound at Petropavlovsk and it was not until the report of his forced landing in the vicinity of Nikolski in the Komandorski Islands that it was known that he had resumed his flight and ended it.

Apparently the flight was made in foggy weather, and in alighting Flg. Off. Plenderleith misjudged his distance, hit the sea with some force, and broke the wing-tip floats and the tail unit. As no spares are available Sq. Ldr. MacLaren's only course was to abandon the flight. Most of the Vulture has been salvaged by the *Thiepval*.

The following cablegrams have been received by *The Times* from Sq. Ldr. MacLaren:—

S.S. *Thiepval*, St. Paul, Alaska. Owing to thick fog have been forced to descend in heavy seas near [Nikolski] Komandorski Islands.

Machine seriously damaged in alighting. All safe; are receiving assistance from *Thiepval*.

Shall not be able to continue flight.

A message received at Seattle from Cordova, and sent by Sq. Ldr. MacLaren, says:—

Wings, floats, and tail smashed. No spare parts available, and it is necessary to abandon flight. Hull and engine salvaged, and taken on board the *Thiepval*.

The Canadian Trawler reached Nikolski on Saturday.

Sq. Ldr. MacLaren, Flg. Off. Plenderleith and Sergt. Andrews left Calshot on a Vickers Vulture (450 h.p. Napier Lion engine) on March 25. Since that date they have fought through to Petropavlovsk, some 13,000 miles, and half-way round the World, in the face of every adversity.

The accident that has forced them to abandon their gallant attempt is not so serious as some of their previous misfortunes, but its unfortunate location in the fog-bound, uninhabited regions of the North Pacific forbids any hope of repair or of obtaining spares.

That they should have got so far is a high tribute to their pluck and pertinacity in the face of illness and misfortune. The splendid sportsmanship of their American friends and of the American Navy who by transporting the spare Vulture in relays of destroyers from Tokio to Akyab when the first Vulture crashed enabled them to carry on when hope was almost abandoned, deserves the thanks of all British aviators.

One offers every sympathy to Sq. Ldr. MacLaren and his companions.

It is a peculiar coincidence that on the day the report of the abandonment of the British flight was received a similar report concerning the accident to Lieut. Wade should have been announced. To him also one expresses regret in his misfortune.

THE AMERICAN EXPEDITION.

On July 30 the American expedition left Brough for the Orkney Islands at 10.15 hours. There was no wind and the surface of the water was glassy. The first machine away was the Chicago, piloted by Lieut. Lowell Smith, and he took nearly three miles to unstick. Lieut. Eric Nelson and Lieut. Leigh Wade followed. Lieut. Leigh Wade was the first to get off in 1 min. 40 secs. The weather conditions at Hull were not good though there was visibility of six miles. They encountered fog from the Firth of Forth to the Moray Firth. This delayed them so that the flight instead of taking them 3½ hrs. occupied 5 hrs. 40 mins.

As soon as the three Douglas Cruisers had moored at Houton Bay they were refuelled in preparation for an early start next day. County of Orkney and Burgh of Kirkwall officials were at Houton to welcome the expedition. The crews were quartered in the U.S.S. *Richmond*.

Although the weather at Kirkwall was ideal on July 31 there were heavy fog banks off Iceland, the next stopping place, so that their departure was postponed.

In case of a tie in any event the sum of prizes awarded will be equally divided.

The interpretation of all regulations or of any here issued shall rest entirely with the Royal Aero Club.

The final regulation states that the Royal Aero Club serves to themselves (presumably this means to itself) right to add to, amend or omit any of these rules should they think fit. This rather reminds one of a rule in a book on "Alice in Wonderland" called "Alice in Motorland" written many years ago one believes by Mr. Horace Vernet who has contributed to *THE AEROPLANE* under a pseudonym. In this book there were some very elaborate rules for a motor meeting at Brooklands, the final one of such stating that competitors may regard or disregard the rules as they think fit and may at any time during the progress of the race invent any new rules as may seem expedient to them.

At any rate the rules for these competitions seem to be sure that the week will be very much more interesting than last year's competition.—G. D.

On Aug. 2 the Douglas World-Cruisers left Houton Bay for Orkney Islands, for Iceland. Lieut. Nelson got off at 10.15 hrs. Lieut. Wade five minutes later but Lieut. Smith had great difficulty in "unsticking" from the glassy sea. He endeavoured to take advantage of the wash of a passing steamer but without result. Eventually Messrs. Nelson and Wade alighted again and taking position in front of the leader ploughed the sea sufficiently to allow all three to get off. Despite favourable weather reports received by the U.S.S. *Richmond*, heavy fog was encountered and Messrs. Smith and Wade were forced to return. Mr. Nelson under the fog and reached Horna Fiord in Iceland at 16.40 hrs., after 8½ hours' flying.

On Aug. 3 Messrs. Smith and Wade left Houton Bay. Some trouble was experienced with Mr. Smith's machine. Mr. Wade twice alighted and raised a wash in front of his companion's machine. The first attempt failed but on the second occasion they both taxied for two miles at high speed into Hoxa Sound and both eventually got off together.

Mr. Wade was forced to alight 115 miles off the Orkney Islands at about 13.00 hrs. and Mr. Smith landed at Thorshavn. The mishap was reported by wireless. It appears that Mr. Wade was located by a British trawler, taken in tow and handed over to the U.S.S. *Richmond*. While the machine was being hoisted on board the *Richmond* the tackle broke allowing the steel boom to fall across the machine. It was not seriously damaged but owing to heavy seas it ultimately capsized while being towed and was cut adrift at 16.40 hrs. The commander of the *Richmond* ordered that it should be sunk by gunfire.

The forced landing was caused by oil-pump trouble, the first of its kind experienced on the flight and it was the second forced landing Mr. Wade had experienced on the whole 19,000 miles of the flight.

Thus is added yet another to the long list of aircraft wrecks after having, in the words of Mr. Kipling, "euchred the Almighty's storm, bluffed the eternal sea," have been reduced to wreckage by ham-handed mariners.

THE ITALIAN EXPEDITION.

Signor Locatelli, the Italian aviator, left Rotterdam at 16.00 hrs. on Aug. 4 and arrived at Brough near Hull at 11.00 hrs. He will not stay at Brough long and will continue his flight via the Orkneys, Iceland and Greenland to New York.

THE ARGENTINE EXPEDITION.

Major Zanni (of the Argentine Air Service), who is attempting to fly round the World, was reported to have landed at Constantinople on July 30 at 11.00 hrs. He left again for midday for Aleppo.

On July 31, Major Zanni arrived at Baghdad and left for Basrah four hours afterwards.

On Aug. 1 he reached Bandar Abbas.

On Aug. 2 Major Zanni reached Karachi and on Aug. 3 he was due to leave for Nasirabad.

Aeronautical Engineers in Australia.

The Australian Branch of the Institution of Aeronautical Engineers is now in process of formation and application has been made to the Council in London for a charter to form the branch officially. The following have already joined.

MEMBERS:—Major Norman Brearley, D.S.O., M.C., D.F.C. Capt. P. Roach-Pierson (Hon. General Secretary), C.R.F. Galloway, D. K. Laidlaw.

ASSOCIATE MEMBERS:—Major H. T. Shaw, O.B.E., C.R.F. E. W. Percival, Flg. Off. A. D. Davidson, Capt. H. J. Bu M.C., Capt. G. C. Callendar, Major L. K. Murray, P. Vyner.

ASSOCIATES:—R. Wallace Kerr, W. W. Stephens.

More members are needed and any readers of *THE AEROPLANE* in Australia who wish to join are requested to communicate with the Secretary, Capt. P. Roach-Pierson, 25 Grevill Street, Chatswood, N.S.W.

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*The above illustration shows a Vickers "Vanguard" (23 Passenger)
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE ROYAL AIR FORCE.

The London Gazette.

July 29.

His Majesty the King has granted unrestricted permission for the wearing of the follg. decoration conferred by the President of the French Republic in recognition of valuable services rendered during the War:—CROIX DE GUERRE.—Lt. (T./Maj.) (now Sqdn. Leader) W. S. Douglas, M.C., D.F.C.

GENERAL DUTIES BRANCH.—The follg. are granted S.S. Commns. as Plt. Offs. on probation, with effect from, and with seny. of the dates indicated:—J. A. Ballantyne, L. S. Birt, P. S. Blockey, C. V. Brealey, W. T. Collins, F. E. J. C. Walsh, C. G. Crowden, F. H. Farrow, R. F. Francis, A. E. Haes, W. T. Holmes, K. W. James, L. A. G. D. Kelly, C. A. E. S. Kregor, G. D. Middleton, H. M. Bason, E. H. Newman, P. H. Nicholls, W. E. Nicholls, C. H. Noble, A. G. Pickering, A. O. Pollard, V.C., M.C., D.C.M. (Capt., Territorial Army Res.), E. G. Rosling, A. T. S. Studdert, D. M. Tyringham, G. A. Younger (July 15); A. C. H. Sharp (July 16).

R. Beresford is granted a S.S. Commn. as a Flg. Off. with effect from, and with seny. of, July 21.

The follg. Plt. Offs. are promoted to the rank of Flg. Off. (June 20):—R. Lewes, F. G. Cator, W. A. Opie, G. E. Nicholls, T. D. Berridge. STORES BRANCH.—Flt. Lt. F. Binns, M.B.E., relinquishes the acting rank of Sq. Ldr. (July 1).

MEMORANDA.—The follg. Offs. of the Electrical Services Works Co. are promoted to the ranks indicated (June 16):—Flg. Off. to be Flt. Lt.—G. E. Blake. Plt. Offs. to be Flg. Offs.—R. S. Broderick, R. W. Strugnell, H. H. Fell, F. McK. Miller, J. N. Hewlett-Brooke.

Aug. 1.

GENERAL DUTIES BRANCH.—Plt. Off. on prob. St. J. F. Wintour confirmed rank, May 10. Grp. Capt. the Hon. J. D. Boyle, C.B.E., D.S.O., restored to full pay, Aug. 1. Sqd. Ldr. M. E. A. Wright, A.F.C., transferred to Reserve, Class A, Aug. 1. The S.S. Commns. of the follg. Plt. Offs. on prob. terminate on cessation of duty, Aug. 1: L. M. Johnston, E. L. Shepherd, Flg. Off. W. D. Vernon-Knibbs removed from Royal Air Force, His Majesty having no further use for his services, July 25.

MEDICAL BRANCH.—Flt. Lt. J. G. F. Heal, M.D., D.O.M. and S., transferred to the Reserve, Class D 2, Aug. 1.

The R.A.F. Cadetship.

The following are declared by the Civil Service Commissioners to be the successful candidates at the competition held in June, 1924, for admission to the Royal Air Force Cadet College, Cranwell, but their admission is conditional on their having passed a medical examination. The names are in order of merit. A Table of Marks will be sent to each candidate as soon as possible.

Hamblin, R.K., Cunningham, J. C., Mollard, P. W., Kincoin, A. H. P., Waring, H., Dickson, J. K. L., Abrams, W. G., Yarde, B. C., Wanliss, E. O., Part, R. F., Bennett, L. C., Lindley, W. J. H., Ginnett, J. F., Martin, H. H., Cary, B. M., Darbishire, R. S., Hall, D. R., Maughan, H. B., Marett, P. L. P., Stevinson, G., Whelan, R. P., Arbuthnot, T. J., Cruickshank, G. B., Marson, J., Chilton, C. E., Moon, F. J., Pickford, H. F. M., Roberts, D. N., Ingle, L. D. C., Horsfield, D. K. Jackson, V. B. J., Utley, R. P. H.

Hon. King's Cadets who have qualified:—Berthon, P. L. A., Purvis, H. A.

The Staff College, Quetta.

The following officer of the R.A.F. has been nominated by the Commander-in-Chief to the Staff College, Quetta:—Sq. Ldr. R. P. Whitehead, R.A.F.

Sq. Ldr. Whitehead appears in the current Air Force List as commanding No. 27 (Bombing) Squadron, R.A.F., Risalpur, India. He was one of the early war-time Probationary Flight Sub-Lieutenants R. N. under the late Wing-Commander John Porte at Hendon.

A Cranwell Inspection.

An inspection of the Flight Cadets and Aircraft Apprentices at Cranwell was held by Field Marshal Sir William Robertson on July 30. The Field Marshal was accompanied by Air Chief Marshal Sir Hugh Trenchard and the senior officers of the R.A.F. Station at Cranwell.

After inspecting the Aircraft Apprentices Sir William Robertson said he was glad to hear their conduct and work were good, as in the Air Force second-class men and work were of no use. If there was scamping of good work, not only was there inefficiency but loss of life. He was very pleased with what he saw on parade. He wanted them to realise that they belonged to the first Service of the three Fighting Services. The Air Force had a very short history, but was full of fine work and gallant deeds. The Air Service was more exacting and important than the other two Services, for the R.A.F. not only had to know its own work, but a great deal about the work of the other two Services. Everybody thought the next war, if there was one, would be to a great extent decided in the air, therefore it was very necessary for them to make themselves efficient. These cadets would be senior officers in ten years' time. Whatever the trials of this country during the next ten or twenty years, they had a great responsibility on their shoulders.

The Commandant's report states that discipline throughout the wing is good. Since the formation of the College, 800,000 miles have been flown, with only two fatal accidents. Work in the workshops during the past term has been satisfactory

in all the subjects, but educational training and instruction have suffered considerably on account of the unequal standards reached by the flight cadets on joining.

There are 981 Aircraft Apprentices now in training, 413 of whom are due to pass out this year.

The sword of honour for the best all-round Flight Cadet in the senior term has been awarded to Flight Cadet Under Officer Waghorn.

The R.A.F. in Iraq.

The *Morning Post* Correspondent in Baghdad in a message dated July 22 states:—

Sulaimaniyah has been reoccupied without opposition by a mixture of Arab army, police, and Royal Air Force units. Sheik Mahmoud has fled, and a temporary administration is being set up. All is quiet.

Sheikh Mahmoud had again set up an independent Kurdish Government in Sulaimaniyah after the withdrawal of British troops in 1923, following the operations described in Sir John Salmond's dispatch covering the period from February 15 to April 30 and from April 28 to June 19, 1923, which were recently published in full in *THE AEROPLANE*. One imagines that after this latest outbreak Sheikh Mahmoud will be finally deposed and cleared out of the country.

Missing R.A.F. Officers.

The *Times* correspondent in a message from Baghdad dated July 30 states:—

Two officers, Flt. Lt. Day, M.C., and Plt. Off. D. R. Stewart, reported missing owing to a forced landing 18 miles south of Basrah-Nasiriyeh railway line during a desert sandstorm several days ago. The machine has since been found in a damaged condition, despite a most careful search the officers have not been traced. It is feared that they may have perished while endeavouring to reach the railway.

Both these officers belong to No. 84 (Bombing) Squadron, stationed at Shaibah, the aerodrome for Basrah.

Anti-Aircraft Manoeuvres.

The annual manoeuvres of the Home Defence forces started in the middle of July and will continue until the end of August on the East Coast. The most important part of the operations is the anti-aircraft artillery work, for which R.A. machines and personnel have been lent by the Air Ministry.

The batteries fire live shells at the "living targets," which are machines flying with pilot and observer, but the shells are timed to burst well below the target.

Three-inch guns are mounted on motor-lorries which are equipped with sound-ranging apparatus for indicating the position of aeroplanes at night.

Night Flying at Folkestone.

Some displays of night-flying have been given during the week-end over Folkestone in connection with a military tournament held there. The pilots were Flg. Off. P. J. Clayton of Squadron and Flg. Off. H. W. Taylor of 17 Squadron.

One does not know which did what but on Friday a Saturday a Snipe appeared over the town illuminated times by three bright lights and sometimes completely outlined by electric lights. The machine looped and rolled twenty minutes or so and caused great excitement.

It may be remembered that a similar stunt used to be performed at Hendon in 1913 and 1914 though one imagines that landing a Snipe at night is much less pleasant than landing the pre-war class of machine.

The Fleet Air Arm.

The *Times* of July 30 states:—

In April last it was announced that naval or Marine officers attached to the Royal Air Force for service in the Fleet Air Arm would be granted Air Force rank during attachment, the initial rank granted being that of flying officer, and would be eligible for advancement in the Royal Air Force, irrespective of their rank in the Royal Navy.

It has now been decided that, in order to ensure the status and authority of attached naval officers under Air Force law while on training, or at such times during their attachment when they may have to command R.A.F. personnel not under the Naval Discipline Act, they will be given temporary R.A.F. commissions while attached.

Such commissions will be given for the above purpose only, and will not in any way whatsoever affect their naval or Marine status or authority.

Attached naval officers will invariably be addressed by their naval titles, and if their naval rank is relatively higher than their Air Force rank they will take precedence (but not command) among Air Force officers in accordance with the naval rank.

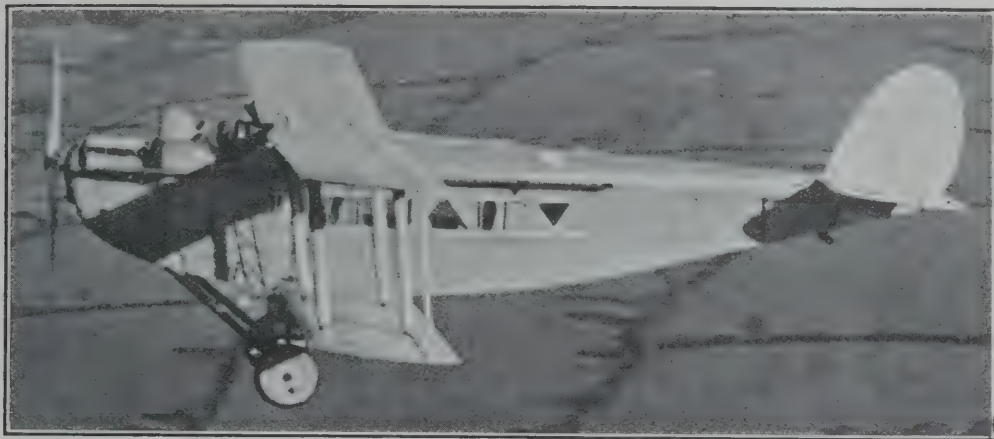
A LONG AUSTRALIAN FLIGHT.

During the first week in August Flt. Lt. McIntyre, Q.B.E., A.F.C., R.A.A.F., flew from Melbourne to Townsville, N. Queensland, a distance of 2,000 miles, in 22½ hours, on a Fairey III D seaplane (Rolls-Royce Eagle engine). He made four stops en route.

He will co-operate with H.M.S. *Geranium* of the Royal Australian Navy in surveying the Great Barrier Reef.

The D.H. Type 34

ELEVEN SEATER AIR LINERS



AND

The D.H. Type 50

FOUR PASSENGER COMMERCIAL AEROPLANES



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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 16; Tuesday, 32; Wednesday, 30; Thursday, 31, Friday, 31; Saturday, 33; Sunday, 15.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Amsterdam—Berlin: Machines 106, passengers 485, freight 35 tons.

AIR UNION:

Paris—London: Machines 40, passengers 257; freight 8½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 15, passengers 63.

DEUTSCHER AERO LLOYD:

Berlin—London: Machines 8, passengers 9.

SPECIALS:

PRIVATE:

Machines 2, passengers 0

DE HAVILLAND HIRE:

Machines 2, passengers 2.

Total number of trips by British machines. 108, carrying 487 passengers. Foreign machines: 65, carrying 329 passengers.

Comparative Figures:

For week ending Aug. 3:

Machines, 173; Passengers, 816; Crews, 213; Total personnel, 1,029.

Corresponding week, 1923:

Machines, 139; Passengers, 730; Crews, 224; Total personnel, 954.

Corresponding week, 1922:

Machines, 161; Passengers, 468; Crews, 266; Total personnel, 734.

Corresponding week, 1921:

Machines, 107; Passengers, 470; Crews, 132; Total personnel, 602.

Corresponding week, 1920:

Machines, 104; Passengers, 212; Crews, 131; Total personnel, 343.

Croydon Notes.

The unsentimental system of putting on to menial work a horse which is over age and might be put out to grass is being instituted at Croydon. After everyone had thought that the ancient and honourable *City of London Vimy* was to be allowed to spend the evening of her days in well-earned quietude in an unused back-air (the equivalent presumably of "back-water") of Croydon Aerodrome she has been pulled out and harnessed and now as a freighter plods her weary way across the Channel in a manner that shows that there is life in the old dog yet.

There has been a large amount of Bank-Holiday traffic and last week (at any rate according to the *Daily Mirror*) the first cannibal arrived, for that paper stated that "one passenger included a rajah accompanied by his four wives"—evidently on the lines of Algy and the bulgy bear.

Mr. Barnard is the only one of the Croydon pilots taking part in this year's race for the King's Cup. It is a pity that mounts cannot be found for more of the civil pilots as their faculty for finding their way across land and sea in the worst weather would certainly show the public what really can be done.

At the Aircraft Disposal Company Limited Mr. Perry is still busy testing various D.H.s for foreign governments.

Mr. Lhota, a Czecho-Slovakian sportsman, who has bought one of the low-wing Avia monoplanes with a Walter engine, arrived from Prague on Thursday and business and the Avia. He left again on Saturday.

In a recent number one referred to the work of the Aero-Lloyd. One is now informed by that firm that its correct name is the Deutscher Aero Lloyd A.G. and so one begs the Deutscher Aero Lloyd A.G.'s pardon.

The American Schneider Cup Team.

The following U.S. Navy officers have been chosen to represent the United States in the forthcoming Schneider Cup Race, which will be held at Baltimore on Oct. 24-25:—Lieut. F. W. Wead, officer in charge of the team; Lieut. D. Rittenhouse, winner of the 1923 Schneider Cup; Lieut. A. W. Gorton, also a member of the 1923 team; Lieut. G. T. Cuddihy and Lieut. R. A. Ofstie. Lieut. L. D. Hundt and Boatswain E. E. Reber will be reserve pilots. Two machines to participate in the American eliminating trials will be the 1923 Curtiss Navy Racer seaplanes that came first and second in the Schneider Cup Race at Cowes last year.

Of the other machines no information is known, but it is rumoured that the 1923 Curtiss Navy Racers that won the Pulitzer Race at 243.6 and 241.7 m.p.h. respectively, will be fitted with floats for the race.

An Accident at Sandgate.

On Saturday night at about 22.00 hrs. Capt. G. W. Glasson, C.A.T.O. of Lympne Aerodrome, was driving his Ford from Folkestone to Lympne. When rounding Battery Point, Sandgate, which is a very dangerous curve, he ran into a motor-coach and he and two officers of the R.A.F. were thrown out. They were taken into Shorncliffe hospital suffering from concussion.

One's own experience of these motor-coaches is that their lights are as a rule nebulous. Therefore it is probable that Capt. Glasson failed to see the coach until it was too late.

The King's Cup Race.

The race round England for the Cup graciously presented by H.M. King George V will start mostly from Martlesham Heath (the only seaplane will start from Felixstowe) at 05.30 hrs. on Aug. 12. The turning points will be at the West Pier, Leith, the Castle, Dumbarton, and Pendennis Castle, Falmouth. The finish will be at Lee-on-Solent Pier.

The list of ten entries was given last week.

The Armstrong-Whitworth Siskins will both be of the III series. Extra tanks have been fitted but otherwise they are standard. They are larger machines than the Ciskin of last year and so it is not expected that the same speed as in last year's race will be attained. It is expected that the Siskins will only make one intermediate stop.

Mr. F. L. Barnard is having a D.H.50 with extra tanks with which he hopes to go round without a stop.

Possibly the greatest effort of all will be the dash of the officials by road from Martlesham Heath to Lee-on-Solent. It seems that if only they had chartered a 34 from Imperial Airways it would be safer for all concerned.

It is hoped that the following, inspired by Uncle Tom Cobleigh in "Widdicombe Fair," will not be too accurate a forecast of their reckless dash across country:—

Dick Dresser, Dick Dresser lend me your big car,

All along, down along, out along Lee,

For I want to go from Martlesham far

With Frank McClean, Guy Standing, Hearty Harold, Colonel Darby

Gen'l Brancker, Lindsay Lloyd, Alec Ogilvie, Partners and all,

Alec Ogilvie, Partners and all.

2 And when shall I see my big car again

All along, down along, out along Lee

By Tuesday soon or Wednesday noon

With Frank McClean etc.

3 Then Tuesday came and Wednesday's tea

All along, down along, out along sky

But Dick Dresser's big car had not got to Lee

With Frank McClean etc.

4 So Dick Dresser he went to the top of the Hill

All along, down along, out along Lee

And he saw the officials amaking their will

With Frank McClean etc.

5 But this isn't the end of this shocking affair

All along, down along, out along Lee

Nor, though they be gone of the horrid career

Of Frank McClean etc.

6 When the wind whistles cold at the Trials at Lympne

All along, down along, out along Lee

Dick Dresser's big car will appear very dympane

With Frank McClean, Guy Standing, Hearty Harold, Colonel Darby,

Gen'l Brancker, Lindsay Lloyd, Alec Ogilvie, Partners and all,

Alec Ogilvie, Partners and all!!!

PERSONAL NOTICES.

DEATHS.

ANDERSON.—On July 28, at Razmak, N.W. Frontier, India, Ian Patrick Anderson, Flg. Off., No. 28 (Army Co-operation) Sqdn., R.A.F.

ASPINALL.—On July 28, at Spittlegate, as the result of a flying accident, Flt. Cadet Howard Harry Aspinall, R.A.F.

BELL.—On July 28, at Razmak Narai, N.W. Frontier, India, Edward Bell, Flg. Off., No. 28 (Army Co-operation) Sqdn., R.A.F.

SLACK.—On July 28, at Razmak Narai, N.W. Frontier, India, Aircraftsman P. Slack, No. 28 (Army Co-operation) Sqdn., R.A.F.

TAYLOR.—On July 28, at Razmak, N.W. Frontier, India, Aircraftsman K. H. Taylor, No. 28 (Army Co-operation) Sqdn., R.A.F.

The following account of the series of accidents which led to the deaths of the above officers and men of the R.A.F. is taken from *The Times* of July 30:—

While returning from carrying out bombing operations near Razmak against the Shabi Khel, six machines ran into a fog and lost direction. Two reached their aerodrome safely, but the third crashed at Razmak, and the pilot, Flg. Off. I. P. Anderson, and the passenger, AC. K. H. Taylor, were both killed; the fourth crashed at Idak, the crew being uninjured; the fifth crashed at Duncan's Picket, Razmak Narai, and the pilot, Flg. Off. Edward Bell, was killed and AC. P. Slack was seriously injured (since died); and the sixth crashed at Shawali Algad, in the territory of Wazirs who brought them back unhurt.

FORTHCOMING MARRIAGES.

MASON—MASON.—The marriage between Lieut. H. J. Mason, R.N. (retired), youngest son of Mr. and Mrs. Frank Mason, The Hatch, Churt, Surrey, and Eugenie Mason (Baby) (late W.R.A.F., Beaulieu), youngest daughter of the late Oscar Edwin Mason, Dunstan Hall, Chesterfield, and Mrs. Mason, Lymington, Hants, is arranged to take place at St. George's Church, Hanover-square, on Aug. 20.

POOLE—OBSORNE.—An engagement is announced between Flg. Off. S. R. L. Poole, R.A.F., son of Mr. S. H. Poole, headmaster of Streatham Hill College, and Miss A. M. Osborne, 58, South-parade, Bedford Park, W.

SHERREN—SMITH.—A marriage has been arranged, and will shortly take place, between Sq. Ldr. Percy C. Sherren, M.C., R.A.F., second son of Mr. and Mrs. W. D. Sherren, of Crapand, Prince Edward Isle, Canada, and Joyce, third daughter of Mr. and Mrs. R. Tilden Smith, 13, Upper Brook Street, W.

MARRIAGE.

FODEN—BOYD.—On June 16, at the M.C.E.G.S. Chapel, Melbourne, Flt. Lt. James Clement Foden, A.F.C., R.A.F., son of the late Mr. and Mrs. Percy Foden, of Melbourne, to Rosalind, daughter of the late Dr. Hugh Boyd, of Bendigo, and of Mrs. Boyd, of St. Kilda.

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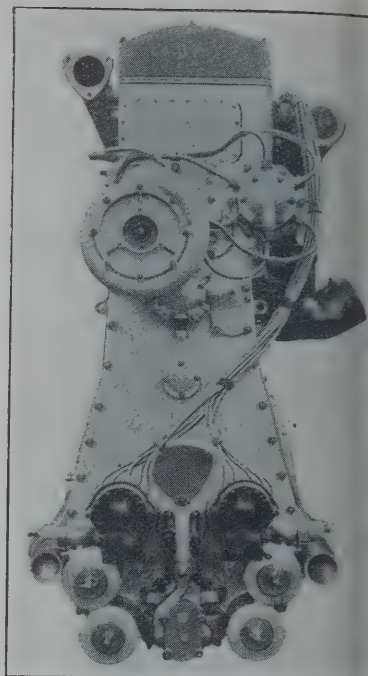
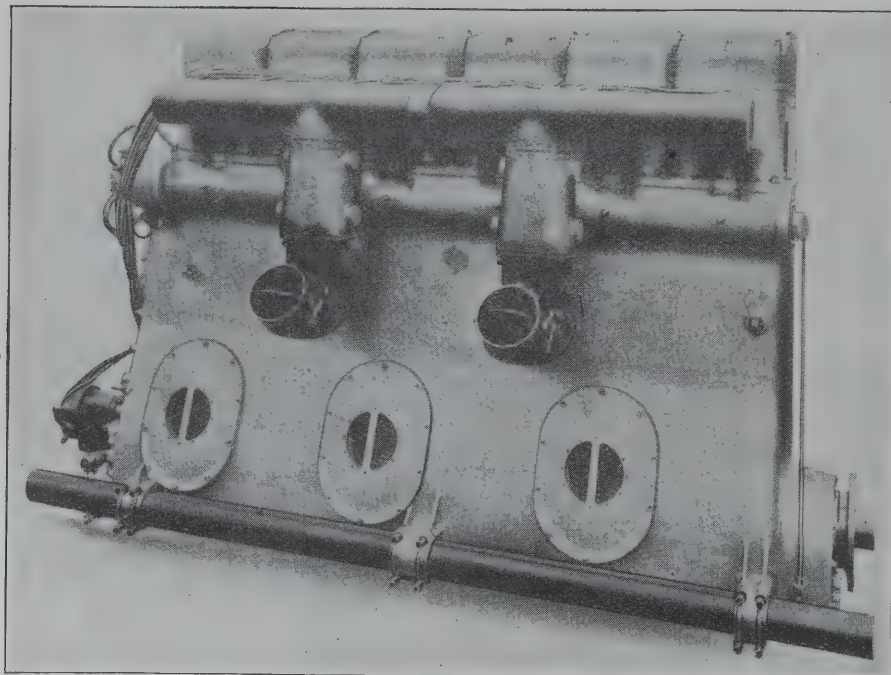
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

AVIATION AT WEMBLEY.



The Beardmore "Cyclone" seen from intake side and gear-case end.

THE PALACE OF ENGINEERING (contd.).

On the stand occupied by Wm. Beardmore Ltd. there are several items of interest. The most important is undoubtedly the new "Cyclone" engine of 800 h.p. This is shown with one crankcase door open and one cylinder head and valve gear cover lifted for the world at large to inspect its "innards"—but it is nevertheless still on the list of engines which may only be described superficially.

The "Cyclone" despite its great output is of the simple six-cylinder vertical type, and is remarkable for its extremely clean exterior and its relative lack of bulk. In general arrangement the engine has quite a number of novel features which are undoubtedly justified by the success which has been attained in keeping the weight of this unit down to 1,800 lbs. or $2\frac{1}{2}$ per h.p. despite the very moderate crankshaft speed of 1,220 r.p.m.

The crankcase and cylinders are one large aluminium alloy casting to which there is attached an end cover at the end remote from the airscrew. This end cover carries or encloses the whole of the gear drives for the camshaft and auxiliary drives. Presumably there is also a bottom cover to the crankcase, but this joins the case proper well below the crankshaft centre line. Three very large removable covers on each side of the case give access to the big end bearings and it would seem possible to remove any complete connecting rod and piston through one or other of these doors without dismantling any other part of the engine.

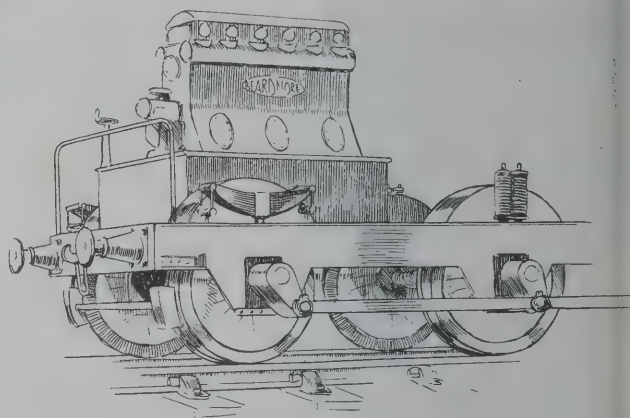
The steel cylinder liners are inserted into the case casting from the top and an independent cylinder head is bolted down to the casting over each cylinder.

The camshaft is completely enclosed in the crankcase casting on one side of and a very little below the top of the cylinders proper and the valves are operated through short push rods—which pass up through passages in the cylinder-head castings—and by rocker arms, carried above from the cylinder heads. There are four valves per cylinder, the stems diverging from the coned head. An aluminium case bolted to each cylinder head encloses the valve gear and even the spark plugs which are in the cylinder heads between the valves.

Magnetos, oil pumps and filter are carried on the end cover of the crankcase grouped about the crankshaft centre and are very readily accessible. The water pump is carried high up on the same cover and is on the opposite side of the engine from the camshaft—presumably the gear train to the camshaft also drives this pump. The water pump discharges directly into a water channel forward in the crankcase casting level with the top of the cylinders.

The whole engine is extraordinarily clean exteriorly—in fact were it not for the presence of such adjuncts as carburettors and magnetos it may be doubted if anyone could recognise that it was an engine at all.

For some reason not yet discovered another sample of this type of engine is displayed on the Constantinesco stand where it surmounts a large steel railway truck which



More Contemplated Improvements? The Constantinesco Aerodrome Tractor

is fitted with the much discussed Constantinesco "Torque Converter." The Beardmore engine is not coupled up to drive the apparatus nor does it seem to perform any but an ornamental function in this connection.

On the Beardmore stand there is also a model of R.34, and among other weapons of defence certain samples of the Beardmore-Farguhar machine gun—one mounted on an aircraft mount. This gun which carries a drum magazine not altogether unlike that of the well-known Lewis gun looks a very promising substitute for that somewhat troublesome weapon. Without professing to any expertise in small arms, the new gun has a simpler and cleaner look than the Lewis, and one is informed that it never jams. The standard (.303) calibre weapon as arranged for aircraft work weighs $13\frac{1}{2}$ lbs., fires at the rate of 1,100 rounds per minute and carries 81 rounds in a single drum. This type of gun can easily be synchronised—and in fact a specimen fitted with C.C. interrupter gear is shown on the already-mentioned Constantinesco stand.

A similar weapon, but of .500 inch calibre, firing at the rate of 450 rounds per minute, which weighs only 28½ lbs., is another implement which should interest the armament experts at the Air Ministry.

Passing from Beardmore's to the stand of Sir W. G. Armstrong, Whitworth and Co. Ltd., one sample of each of the well-known Armstrong Siddeley air-cooled radial engines will be found. In addition there are some very well executed drawings of the Armstrong Whitworth "Siskin" single-seat fighter, and a model of R.33.

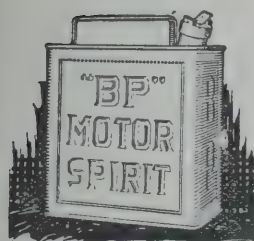
Vickers Ltd. amongst an exhibit of very great extent and of astonishing range show a set of excellent models of all the better known Vickers aircraft. On the only occasion on which one got to this stand however some personage of im-

Right for Every Flight

Flying conditions allow of no experiment—permit of no imperfection—everything must be absolutely right before a machine leaves the ground.

Therefore, flying men fill up with "BP," the British Petrol, for they know from experience that they can rely upon it—that every gallon is of the same high quality, and that for power, reliability and an instant start, "BP" has no equal.

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ENGINE.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

portance was present on the stand and all entrances thereto were barred. One has therefore to record this particular exhibit as it was seen from the outer darkness. An exhibit of duralumin in various forms, and worked up into components for various uses, will have its interest to aeronautical engineers—as also will the display of aircraft equipment which this firm has developed with such success.

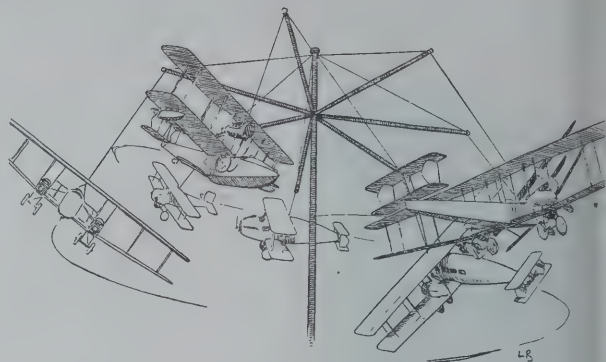
A later inspection of the stand revealed the fact that the aeroplane models above mentioned are all suspended from a model of the superstructure of one of the late Sir Hiram Maxim's captive flying-machines—a fact which moved an abnormally intelligent member of the public to emit the opinion that the exhibit represented a new type of helicopter.

On a large stand illustrative of the work of the N.P.L. there will be found surprisingly little of aeronautical interest. A section devoted to light alloy research is worth study from the purely utilitarian point of view—but the stand as a whole is worthy of detailed examination by those to whom general scientific work has an interest.

Rubery Owen and Co., of Darlaston, who have played a large part in the development of aircraft metal work have an excellent display of stamped and pressed steel work, and of small machined parts. Amongst them the informed will recognise a certain number of distinctly aeronautical origin.

The stand of Siebe Gorman Ltd. is naturally largely occupied with diving and mine rescue apparatus. Oxygen apparatus for all forms of high altitude work including flying are however amongst the exhibits.

Lastly on the stand of the L.E.P. Transport civilian air transport is very prominently advertised in some considerable part by excellent models of commercial aeroplanes.



The Vickers-Maxim Flying Machine.

THE PALACE OF INDUSTRY.

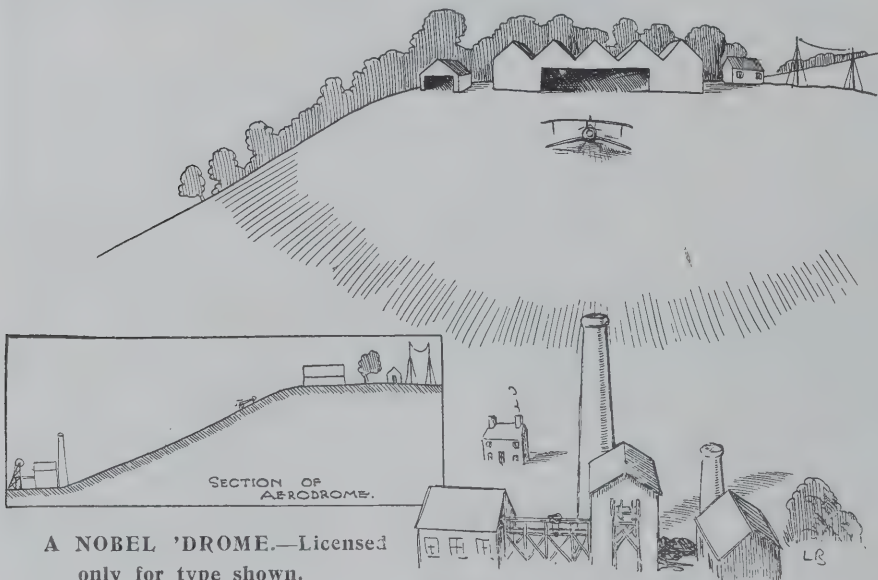
The Palace of Industry has so far completely baffled the present writer. Although considerably smaller than the Palace of Engineering it is much more confusing, and difficult to explore.

Up to the present it has only revealed to him one object of aeronautical—which is to be found in the stand of the Nobis Industries Ltd. Here there is a large model representing some sort of composite image of the ramifications of this concern and of the industries which depend from it. Included amongst the objects shown on the model is what purports to be an aerodrome which is even more curious than any of the official efforts in this direction to be found in the Government Pavilion.

The aerodrome consists of one slope on an extremely steep and rough hillside. The only possible "take-off" direction is down the hill, and precisely where any aeroplane using the ground would be certain to hit it is the pinhead gear of a colliery. In the middle of the aerodrome is a model of an aeroplane which has obviously tried the experiment, and has been left on the ground while the salvage party had adjourned for lunch or other refreshment.

A semi-aeronautic exhibit is that of the Chance Bros. of lighthouse fame, who show in their large display of glassware a number of small automatic lighthouse lights such as are used on aerial lighthouses and beacons. A number of these are in operation, thus arousing the curiosity of the curious Wembley frequenters.

However one hopes to return to this part of the exhibition armed with a large-scale plan and some prospect of finding one's way about. Doubtless other evidences of aviation will then be discovered.



AN AMERICAN SPORTING SEAPLANE.

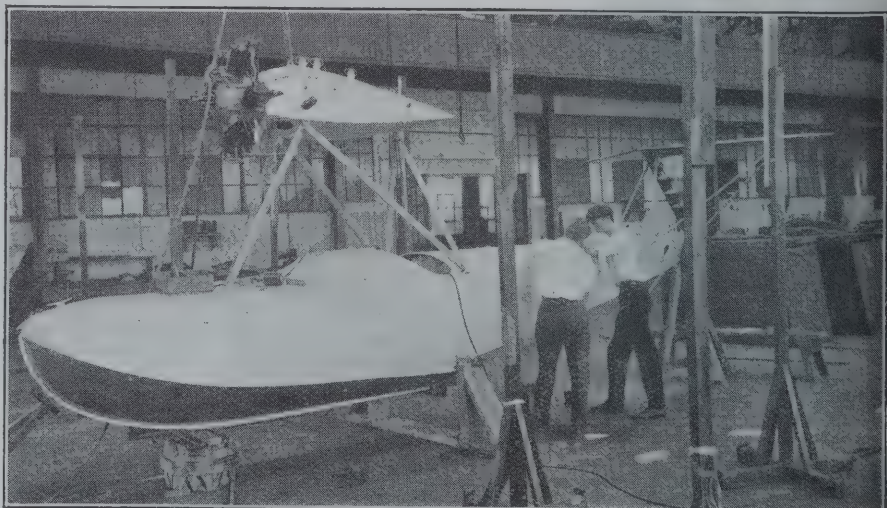
Following the success attained with the metal hull of the A.M.C. type commercial flying boat the Aeromarine Plane and Motor Co., of Keyport, New Jersey, have just completed to the order of Mr. Earl Osborn a small flying boat fitted with an Anzani engine.

The hull like that of the larger machine is of 17S alloy—and this material is largely used in the rest of the machine—the engine nacelle and tail framing being constructed thereof. No information as to the structure of the wing is as yet available but one hopes to publish full details of this interesting little boat at an early date.

The machine is a heavily staggered biplane with the top wing well above the hull and the engine mounted in a nacelle which not only contains tanks, etc., but also forms the centre section.

The machine was flown for the first time on June 28 and

found to carry three people quite easily—though it is not quite clear where they were all stowed. The total weight of the metal hull is 217 lbs.



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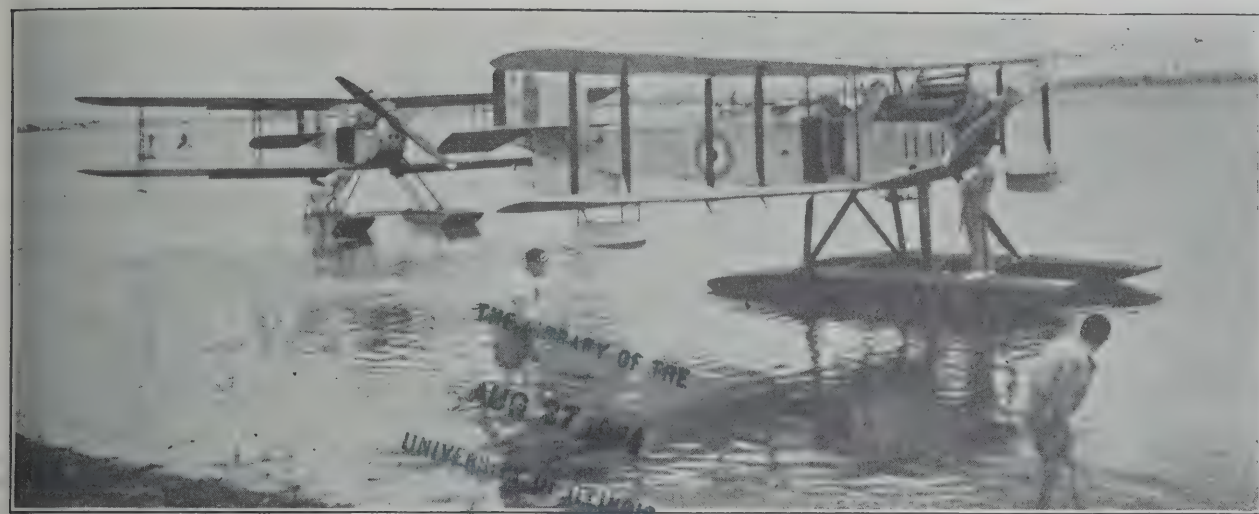
Edited by C. C. Grey

Vol. XXVII. No. 7.

SIXPENCE WEEKLY.

Registered at the G.P.O. as a Newspaper.

TUNING AT TUNIS.

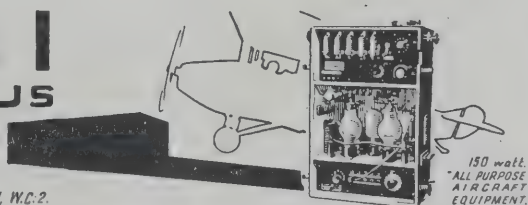


MOORED FOR THE MOORS:—The two Fairey III Ds. (Napier Lion Engines) which visited the former home of the Barbary Pirates are here seen moored out on the lake at Tunis for the edification of the native population.

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A Message from the Oxford Arctic Expedition.

THE following message received by A. V. Roe & Co., Ltd., from Mr. George Binney, the leader of the Oxford Arctic Expedition, needs no comment. It refers to an AVRO Seaplane (fitted with 180 h.p. Siddeley-Lynx engine) and was transmitted by wireless from Spitzbergen.

“MOST sincere congratulations on amazing seaworthiness of seaplane; 18 hours’ heavy seas, undamaged, floats dry. Ellis, 9 years seaplane experience, considers performance unrivalled. Undoubtedly owe our lives to your fine workmanship.

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THE KING'S CUP RACE!

[Owing to the Competition for the King's Cup being flown on Tuesday it has been necessary for THE AEROPLANE to go to press on Monday so that the Staff might spread themselves over the widely dissociated starts and finishes of the Competition. Consequently it is impossible to deal with the Competition in this week's issue. One proposes to describe the doings fully next week.]

ON THE FAILURE OF OUR WORLD FLIERS.

The Sunday Chronicle of Aug. 10 publishes under the signature of Mr. G. H. Mair an article purporting to explain why Sq. Ldr. MacLaren failed to fly round the World. According to Mr. Mair the chief reason was that the Vickers Vulture was overloaded and so was unable to fly high.

Mr. Mair says:—"I fear the conclusion must be reached that Mr. MacLaren's attempt reflects little credit on his judgment, and that the effect will be, whether we like it or not, to give countries now developing their air forces, who are looking to ex-combatants in the war for inspiration and advice, a pardonable, though quite erroneous conception of our inferiority in this matter."

Apart from Mr. Mair's quaint use of the English language this article is chiefly nonsense, as is generally the case when a general journalist butts in on a specialised subject. In the first place the pluck and pertinacity of the Vulture's crew will certainly not give any impression of inferiority. Any suggestion of inferiority is an insult to them and to the Royal Air Force.

Mr. Mair forgets conveniently that M. Doisy crashed his machine irreparably without getting as far as did Mr. MacLaren and that he did so on an open golf course in fine weather, not in a savage sea in a fog. He also forgets that Major Martin, the American leader, crashed and retired without going anything like Mr. MacLaren's distance, and that Lieut. Wade, U.S. Army, is also out of the hunt, and that the other Americans have each used up more engines than did Mr. MacLaren.

Incidentally, for the benefit of those who attribute the American success—so far as it has gone—to superior organisation, one would point out that the depots, dumps, supplies, spare-part mines and so forth arranged by Vickers Ltd. and the Shell Co. for Mr. MacLaren were quite as frequent and as elaborate as those arranged by the U.S. Army. Mr. MacLaren was helped by the British Navy at Corfu and by the Japanese and Canadians in the Pacific, and his spare machine was transported to Akyab by the U.S. Navy. So, to use an Americanism, the U.S. Army pilots had nothing on him in the matter of outside help.

As to high flying,—No pilot is going to fly high over fog over unknown country. None of Mr. MacLaren's mishaps have been caused by flying low. And speed had nothing to do with the flight in any case.

Also it is well to remember that Major Zanni, the Argentine pilot, whose flight to Calcutta has been practically as fast as M. Doisy's is using a British Napier Lion engine.

Mr. Mair makes the amusing statement that "the engine which Mr. MacLaren was using had to have a gear fixed to it in order to use a propelling instead of a tractor screw" and he describes this as one of "the main technical elements which made his attempt so inglorious."—This will be news to all users of Napier engines, who are under the impression that all Napier engines "have a gear fixed" to them, whether for tractors or pushers.

Here Mr. Mair seems to have got hold of a hazy idea of the theory, which deserves to be tested by the R.A.E. at Farnborough if it will condescend to do the job for which it exists, that Mr. MacLaren's two first breakdowns were caused by using a pusher-screw on a flying boat. The theory is that as the tips of the screw clear the deck of the boat by only a

few inches each blade as it passes the deck receives an upward jolt from the air which it pinches between its tip and the deck, and that this persistent series of jolts finally breaks up the gears (as at Corfu) or shears the bolts of the gear-wheel (as in India).

It is a reasonable theory because nobody has ever flown a pusher flying-boat with this type of gearing so far as from London to Corfu, and so such an effect, if it exists, has never had a chance of being discovered. And one would add that a possible contributory cause is the fact that in a tractor the nose (and gear-box) of the engine is exposed and kept cool, so that the oil playing round the gears is kept cool, whereas in a pusher the gear-box is blanketed by the crank-case and cylinder-blocks and absorbs all the heat thrown back from the engine, so that the oil may very well become so heated as to lose its viscosity and may thus cease to do its work on the gear teeth.

The wreck at Akyab and in the Komandorski Islands had nothing to do with engines or with overloading. The causes should be investigated and the results published, as much in the interests of Vickers Ltd. as anybody else, so as to remove any impression that the machine itself failed. And even if it did fail Vickers Ltd. are big enough to be able to afford to say so and thus prevent people from thinking that they are hiding something.

Personally one thought when the flight began that an amphibian flying boat was just the thing for the Round-the-World flight. But in the light of Mr. MacLaren's mishaps one is now inclined to think that it is not. One would prefer an aeroplane—with floats for the long sea journeys.

Mr. Mair is pleased to jeer at Mr. MacLaren for going via Egypt instead of via Constantinople. One has always held that the Vienna-Constantinople route is the proper one to India, for air lines and mail routes. But for a flight like Mr. MacLaren's, which was semi-official, one would always go where the help of the R.A.F. was to be had. Moreover, Mr. MacLaren had flown to India before by that route and wisely chose to follow the road which he knew. And whether he went by that route or the other had nothing whatever to do with any of his breakdowns nor with his ultimate failure.

Altogether Mr. Mair's article is singularly devoid of sense, even of the most common sort. And it fails signally to fulfil the promise of its large heading "Why MacLaren Failed," for that is precisely what it does not explain.—C. G. G.

ON THE AIR ARM IN IRAQ.

Command Paper 2217 signed by Lord Thomson, Secretary of State for Air, and dated Aug. 1, 1924, has been issued apparently as a reply to those who insist on regarding the existence of the Royal Air Force in Iraq as either the imposition of an unwelcome Government on peaceful pastoral Arabs or on the other hand as a means of training the youthful British aviator in habits of modern barbarism.

This White Paper points out that defiance of the administration in Iraq and resultant disorder are in some cases tackled by police action alone. It is only when this fails or seems inadequate that the administration appeals for the help of the Air Force.

The Air Officer Commanding exercises absolute control over all military forces in the country and his policy is to make increasing use of the Iraq Government's own forces, as differentiated from the British forces, that is to say native levies officered by regular British officers are employed with or without the co-operation of armoured cars. The natives know that these ground forces have the air arm behind them and this is a powerful factor for peace. Air action therefore is only used as a last resort after approval (a) by the Iraqi Minister of the Interior and his British Adviser and (b) by the High Commissioner.

As an illustration it is stated that in November 1923 the Iraqi Governor of an area on the Euphrates decided that a certain district much intersected by water channels and therefore unsuitable to wheeled traffic was definitely out of hand. This area had given considerable trouble to the Turkish authorities before 1914 and was still intolerant of

government. Inter-tribal fighting was common and raids were made against peaceful neighbouring districts with consequent loss of life and damage to property. For the protection of the neighbouring tribes and in the interests of peaceful development order had to be enforced.

After consideration by the authorities in their successive upward steps the Air Officer Commanding was asked to take action. The High Commissioner himself went to the Headquarters of the local government and conferred with local officials. Special service officers, with knowledge of the local conditions, the Iraqi Governor of the Province, his British Adviser, the local Commandant of Police and the British Police Inspector of the area were taken by air to Baghdad to consult with the Air Officer Commanding, who himself made a reconnaissance of the district from the air at a low level. It is mentioned that after a rising in 1920 a full infantry division of Imperial troops had been unable to control the area.

The action taken was as follows: The turbulent chiefs were formally summoned to provincial Headquarters and were warned that action would be taken if the summons were not obeyed. They refused to come in, so bombing took place for two days. The head men of the offending tribes surrendered and a force of mounted police was enabled to enter the area and destroy a large number of forts, the existence of which had led to the disturbances mentioned.

This is an excellent example of "Control without Occupation" a phrase coined by Sir Samuel Hoare when he was Air Minister.

The remainder of the White Paper re-states the case for the use of air force as set forth by Sir Hugh Trenchard in his speech at the Independent Force Dinner a year or two ago when he pointed out that aircraft could bring pressure to bear at very low cost as compared with the slow movement of ground forces over unfamiliar country offering tribesmen opportunities for ambush and loot.

It is stated that bombing is only used in answer to persistent open and armed defiance after warning of the consequences. In many cases a warning of air action is sufficient to cause a withdrawal of the offending tribes. Also it is stated that the use of the Air Arm is effective more because of its damage to moral and its interruption of the normal life of the tribes than because of the actual number of casualties, which are less than would be caused by ground exploitations.

The usefulness of the Royal Air Force firstly as a threat of power which can be used and secondly as a means of transport which facilitates the centralisation of government, is particularly emphasised.—C. G. C.

ON AERONAUTICAL EDUCATION IN GERMANY.

For the annual glider meeting in the Rhön mountains, which is to be held as usual during the last fortnight of August on the Wasserkuppe, no less than seventy-five entries have already been received.

As in previous years a large number of the entries come from clubs or associations formed from among the students of various German Universities, though there are in addition a large number of entries from individuals and some from manufacturing firms.

Air Way Extensions.

Various statements have recently appeared to the effect that Imperial Airways Ltd. are planning extensions of the three present air lines. Apparently the London-Berlin service is to extend to Moscow via Königsberg, the Cologne line is to extend to Vienna, Bukharest and Constantinople; and the London-Paris line is, it is alleged, to continue to Zurich and thence across Switzerland to Italy and so to Rome, with a possible further extension to the South of Italy, Malta, Northern Africa and Egypt.

One does not imagine that these stories are in any way official. They strike one as being rather the efforts of a journalistic imagination which is capable of envisaging the obvious.

The Berlin-Moscow extension is fairly natural provided that we can persuade the French to remove their ridiculous objections to the building of proper commercial aircraft in Germany. Until that is done the Germans will hardly be so foolish as to let us run big machines across Germany, in spite of the popularity of the English with the German people. And it would not be a commercial proposition to extend the route with the small machines which Imperial Airways are running for the time being as far as Berlin, pending the use of bigger machines. There is also doubt as to whether it would be worth our while to run an air line to Moscow, seeing that there is already a perfectly good German line thither.

The Cologne extension to Vienna is also liable to the same objection in that nothing much can be done till we can use large commercial machines. And the air traffic to Constantinople is not likely to be considerable in any case.

This is, one believes, the largest number of entries yet received for any Rhön competition. The increase in number is partly accounted for by the development of the light aeroplane. There are up to the present 28 machines fitted with engines among the total entries.

Experience in previous years indicates that by no means all the machines entered will actually take part in the meeting. Nevertheless the number of entries justifies the belief that between 30 and 40 machines will actually appear for the contest, and that quite a number of the entries which will not arrive will represent machines which have actually been constructed or laid down but which will not be ready in time for the meeting.

All this, be it remembered, will be for an insignificant total in prizes. The chief individual prize at the meeting appears to amount to £15 and certainly the whole prize fund does not amount to £1,000.

In this country the 1,000 guineas offered by Mr. Selfridge for a 50-mile glide has drawn one entry in 19 months. £3,000 offered by the Air Ministry for a competition for light aeroplanes next September will certainly not induce more than 20 entries at the most. The Aerial Derby has been cancelled because there was only one entrant and even for the King's Cup Race there were only ten entries received.

To a large extent the somewhat disheartening contrast between the support given to the sport of flying in Germany and the indifference to that same sport in England, is directly the result of the ill-advised attempt made by the Allies to suppress the production of aircraft in Germany, in that energy which might have been used in producing big commercial machines has perforce to find a vent in these little experimental aircraft. But whatever the cause the result is sufficiently serious. Practically every German "Technical High School" provides a course of training in aerodynamics of aeronautical engineering as part of its normal curriculum. A very much larger proportion of the engineering students of those institutions than have any prospect of earning their living as aeronautical engineers in normal times pass through those courses, and it is these students who are largely responsible for the design, construction and flying of the German gliders and light aeroplanes.

These men will be available when the time comes for the manning of the technical side of the German Aircraft Industry and the German Military Air Service.

In this country save for the Zaharoff Chair of Aeronautics at London University and the Mond Chair of Aeronautics at Cambridge, we have no provision for the training of aeronautical engineers of the same standard as is to be found in the German technical schools.

Seventy-five entries for a gliding meeting argues the existence of a considerable number of individuals who have a large interest in, and a very considerable knowledge of, the technics of aeronautical engineering. It may be said with confidence that there are not in this country enough men possessing these qualities to design and build or cause to be built so many machines for a single meeting in a single year.

In other words Germany is providing herself with competent aeronautical engineers. We are not.—W. H. S.

The London-Paris-Zurich line is not likely to be at all popular for some time to come, owing to the prevalence of fog over the Franco-Swiss frontier mountains. A line in this direction cannot be run with reasonable regularity until proper ground communications are laid which will enable the machines to follow their course accurately through fog and until proper commercial aeroplanes are built which can fly slowly and can land at a speed of nothing an hour.

If these stories of airway extensions are true then the Board of Imperial Airways, Ltd., is pursuing an entirely wrong policy. Its policy before extending anywhere should be to make the existing lines thoroughly safe for flying in daylight, in fog or in the dark by means of proper signal posts on the ground, proper wireless communications and, above all, by the use of proper aeroplanes which can be put down anywhere without endangering the lives of passengers. Money spent in that way will return in many less days than money that is thrown away merely on petrol and oil and pilots' wages expended in scouring the Continent of Europe with empty cabins.

A French Fiasco.

The contest which began in France a fortnight ago for a tour of France by light aeroplanes has now ended. Fifteen machines entered, only three passed the eliminating trials and of these two fell out of the contest in the first two days.

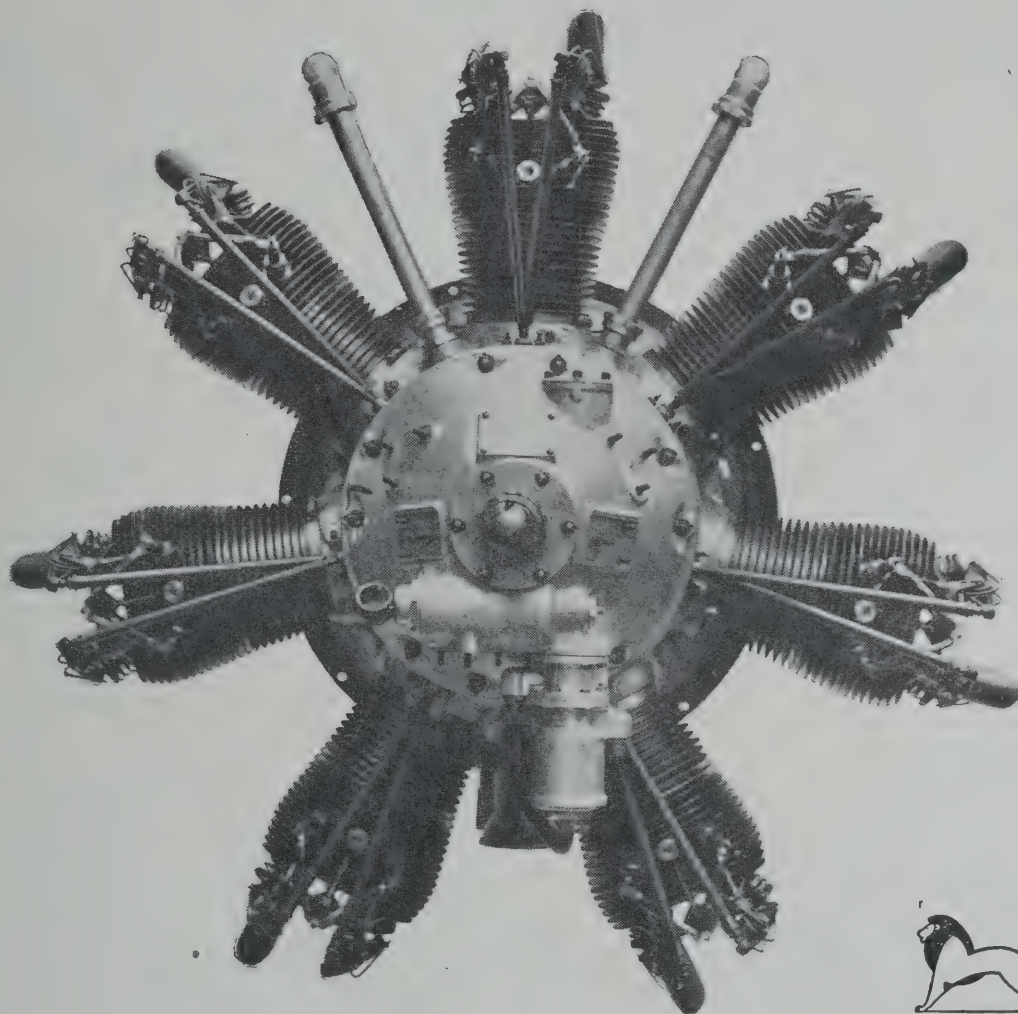
The winner, or rather the survivor, was Drouhin who landed at Bruc at 09.45 hrs. on Aug. 10.

One of the three to pass the eliminating trials was the A.N.E.C. monoplane which tied for the chief prize at Lymington last year. On this occasion it was flown by a French pilot.



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Appointments.

Week ending Aug. 9.

GENERAL DUTIES BRANCH.—Wing Commanders H. A. Williamson, C.M.G., A.F.C., to A.M. for Air Staff duties, 1/8; J. C. Quinell, D.F.C., to No. 7 G.H.Q., Andover, for Air Staff duties, 12/8; T. R. Cave-Browne-Cave, C.B.E., to remain at R.A.F. Depot instead of to No. 1 S. of T.T. (Boys), Halton, as previously notified.

Squadron Leaders G. H. Bowman, D.S.O., M.C., D.F.C., to No. 5 F.T.S., Sealand, 18/8; G. B. A. Baker, M.C., to No. 2 F.T.S., Digby, 23/8; R. H. G. Neville, M.C., to No. 29 Sqdn., Duxford, 12/8.

Flight Lieutenants J. M. McEntegart, to Air Ministry, 9/7; A. P. Ledger, M.B.E., to Boys' Wing, Cranwell, 11/8; J. L. M. de C. Hughes-Chamberlain, to No. 27 Sqdn., India, 13/9; C. N. Ellen, D.F.C., to R.A.F. Base, Leuchars, 25/8; G. A. H. Pidcock, E. D. Davis, both to Armament and Gunnery School, Eastchurch, 18/8; H. V. Pen-davis, D.S.O., to School of Photography, Sth. Farnborough, 5/8; R. St. H. Clarke, A.F.C., to Armament and Gunnery School, Eastchurch, 18/8; M. A. Simpson, to No. 99 Sqdn., Bircham Newton, 17/8; R. A. George, M.C., to Boys' Wing, Cranwell, 9/8; R. Harrison, D.F.C., to No. 2 F.T.S., Digby, 12/8; E. G. Hilton, D.F.C., A.F.C. to A.E.E., No. 22 Sqdn., Martlesham Heath, 14/8; J. C. Foden, A.F.C., to No. 38 Sqdn., Worthy Down, on transfer to Home Establishment, 31/7; H. J. Edgar, to R.A.F. Depot, 13/8; E. H. Richardson, to No. 5 F.T.S., Sealand, 11/8.

Flying Officer J. A. Elliott, to No. 13 Sqdn., Andover, 1/8; H. G. P. Ovenden, to No. 207 Sqdn. Eastchurch, 25/8; G. H. Russell, D.F.C., to School of Photography, Sth. Farnborough, 5/8; C. N. H. Bilney, to Armament and Gunnery School, Eastchurch, 18/8; P. R. Cawdell, to Aircraft Depot, Iraq, 12/7; R. A. King, to No. 4 F.T.S., Egypt, on appt. to a Temp. Commn. on being seconded from the Army, 29/7.

Pilot Officers G. L. Worthington, to No. 441 Flight, Leuchars, 4/8; C. E. Galpin, to No. 2 F.T.S., Digby, on appointment to a S.S. Commn., 29/7; B. F. Harding, to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 22/7.

STORES BRANCH.—Wing Commander (Stores) E. J. Sayer, M.C., to No. 3 Stores Depot, Milton, 15/8.

Squadron Leader (Stores) W. E. Aylwin, O.B.E., to R.A.F. Depot, 1/8; J. S. Goggin, to Headquarters, Palestine, 1/2.

Flight Lieutenant (Acct.) W. Rollinson, to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 22/7.

Flying Officers (Stores) E. G. Keeping, to I.A.A.D., Henlow, 9/8; W. H. Harrison, to No. 29 Sqdn., Duxford 9/8; S. R. L. Poole, to remain at No. 1 Stores Depot, Kidbrooke, instead of to No. 29 Sqdn., Duxford, as previously notified.

Pilot Officer (Stores) R. G. A. Vallance, to No. 4 Stores Depot, Ruislip, instead of to I.A.A. Depot, as previously notified.

MEDICAL BRANCH.—Flight Lieutenants (Medical) T. J. X. Canton, M.B., D. D. Dickson, M.B., F.R.C.S.(E.), Cranwell, 16/8.

Flying Officer (Medical) S. S. Proctor, M.B., to No. 1 S. of T.T. (Boys), Halton, 12/8.

GENERAL DUTIES BRANCH.—Flight Lieutenants K. H. Riversdale-Elliott, to R.A.F. Depot on transfer to Home Estab., 1/8; A. S. G. Lee, M.C., to No. 1 G.H.Q., Kidbrooke, 15/7.

Flying Officers H. E. Y. Carroll, J. A. Stedman, to No. 5 F.T.S., Sealand, 14/8; R. E. B. Rose, to R.A.F. Base, Calshot, on transfer to Home Estab., 4/8; C. C. Harris, to No. 4 F.T.S. on appointment to a Temp. Commn. on being seconded from the Army, 1/8.

STORES BRANCH.—Flight Lieutenant (Stores) E. D. Galloway, to H. Inland Area, 8/8.

Flying Officer (Accountant) J. L. Armstrong, to H.Q., Accounts Office, Iraq, 5/5.

R.A.F. Memorial Fund.

A meeting of the Executive Committee was held at No. 7, Idol Leigh House, on July 23.

The following members of the Executive Committee were present: Lord Hugh Cecil (Chairman), Lady Leighton, Dame Helen Gwyn Vaughan, Mrs. B. H. Barrington-Kennett, Mrs. L. M. K. Fra Barlow, Sir Charles McLeod, Air Vice-Marshal Sir Geoffrey Salme Air Commodore E. R. Ludlow-Hewitt, Lt.-Cdr. H. E. Perrin, W. S. Field.

The hon. treasurer in laying before the meeting a list of donations and subscriptions received since the previous meeting of May remarked that one or two of the items showed the great interest in units of the Air Force were taking in regard to assisting the fund. On the other hand, the Fund were now issuing increased grants to those in distress.

The chairman of the Grants Sub-Committee laid before the Executive Committee two appeals for educational grants under the Salters' Benefaction, both of which were approved by the Committee.

The resignation of his membership of the Executive Committee submitted by Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P., owing entirely to heavy Parliamentary duties, was accepted by the Committee with much regret, and that officer was unanimously invited to become a Vice-President of the Fund.

Waziristan.

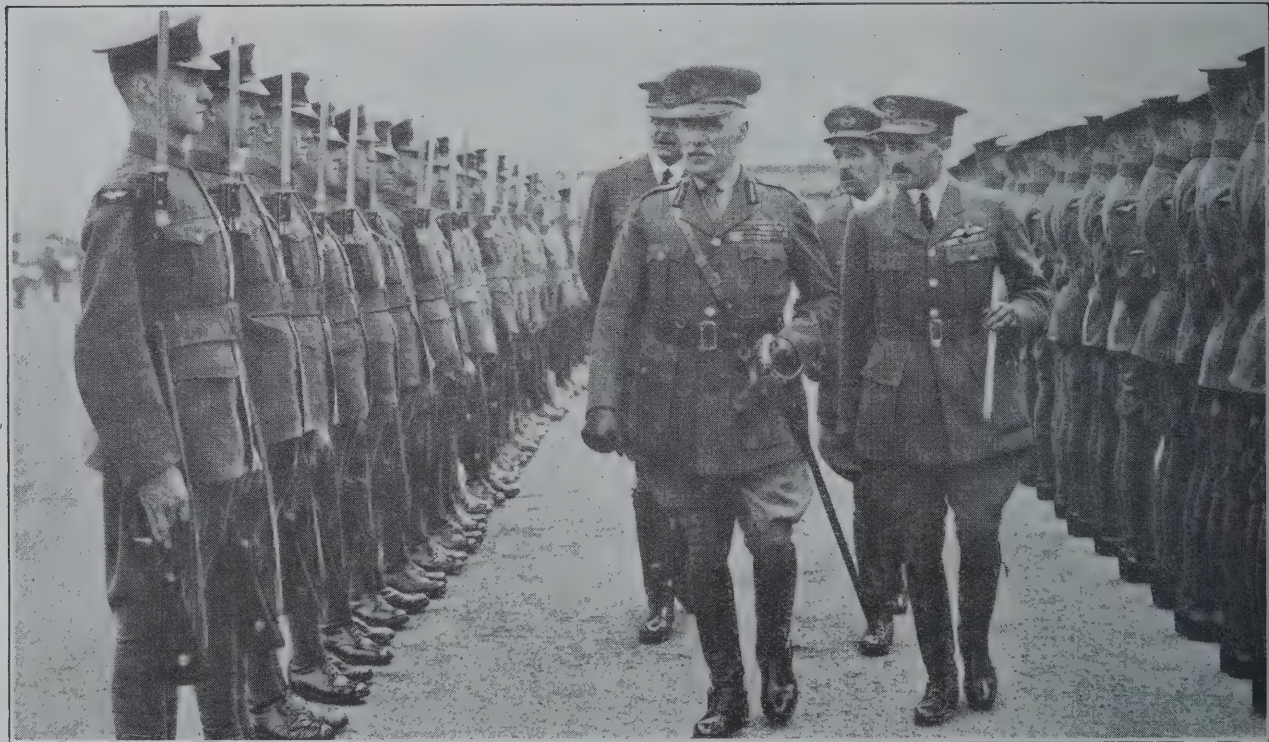
The following account of an aerial tour over Waziristan officers of the Staff College at Quetta is taken from *The Times* of July 12:—

Among the impressions gained during the recent flight of Staff officers over Waziristan was a realisation of how narrow is the belt of unadministered territory. At a height of 8,000 ft., which was necessary in order to clear most of the ridges, almost the whole of the belt was visible. The chief sensation of flying along the front in hot weather is the comparative coolness below in the early morning; then after ascending from 2,000 to 4,000 feet one finds yesterday's hot air hanging above the ground. Flight is smooth in the morning and bumpy at midday and in the afternoon.

The flight from Peshawar to Sora Rogha took the aeroplanes over the Kohat Pass to Thal then over the line of the projected motor road to Idak, over the evacuated posts at Spinwam and Shewa, where to the right lies the Khost salient and the forts at Matun, the scene of the recent Afghan fighting, are visible.

At Tanda China the bulk of the Razmak column was observed camping for work on the road, then the course was down the Tal Zam to Sora Rogha, whence the officers motored to Tank, to fly again thence to Dera Ismail Khan. Instead of the stony path along the river-bed of four years ago, traffic was now seen moving along a new motor circular road.

The second day's short trip from Dera Ismail Khan to Razmak was notable for the pleasant ascent from torrid Derajat on the plain with its temperature of 114 deg. in the shade to the cool plateau at



AIRCRAFT APPRENTICES.—The Boys' Wing at Cranwell, being inspected by Field-Marshal Sir William Robertson. On the Field-Marshal's left is Wing-Commander Barton, O.C. Boys' Wing. Behind them is Air Chief Marshal Sir Hugh Frenchard, and on his left is Air Commodore Borton, Commandant of the Cadet College and O.C. Cranwell.

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the new cantonment at Razmak where, however, the liberty of movement of the troops is restricted, as is exemplified by the fact that before beginning a hockey match on the level ground to the north of the camp, a covering party was sent out to prevent any enterprising Mahsud from sniping spectators or players.

The third, and longest, trip from Rasmak to Quetta took the officers over Kajuri Kach at the junction of the Zhob and Gumal rivers, then to Fort Sandeman over the motor-road to Loralai, whence they went to Chinjan, crossing the hills to Hindubagh and following the road again and the railway to Bostan. The aeroplanes dropped down on Quetta after crossing over the high spur west of Takatu at a height of 11,000 ft.

This flight of 320 miles was completed in four and a-half flying hours. The pilots skilfully avoided the intense heat of the Gomal valley by keeping above 9,000 ft. Between Loralai and Hindubagh a belt of driving dust caused a bumpy passage.

The tour was a success, as it afforded an opportunity of rapidly gaining knowledge of the topography of the country and of facilitating co-operation between the two sister services charged with the duty of defending the frontier. It also proved the efficiency of the Royal Air Force and improved the personal touch between the Army Headquarters' staff and the troops arduously employed and enduring fierce heat in such places as Manzai, Tank, and Dera Ismail Khan.

The Frontier Accidents.

While carrying out bombing operations against the Shabi Khel tribesmen south-east of Razmak on July 28 six R.A.F. aeroplanes were caught in a heavy fog on the return journey. Two reached their aerodrome safely but the remaining four crashed.

One machine fell at Idak, the crew being uninjured. The second came down at Razmak and Flg. Off. J. P. Anderson and K. H. Taylor were killed. The third machine crashed at Duncan's Piquet and Flg. Off. E. Bell, the pilot, was killed, and his passenger Aircraftsman P. Slack, who was seriously injured, died of his injuries the same night. The fourth machine fell in the Shawali Algad and the crew, consisting of Sq. Ldr. A. J. Capel and Leading Aircraftsman Bell, fell into the hands of a friendly section of the Wazirs.

Arap Khan the leader of the recalcitrant section which had been bombed by the aircraft, being a wealthy man, as befits a retired contractor formerly employed in British territory but dismissed because of his rapacity, was able to make an attractive offer for the officer to his captors. He was sold but Aircraftsman Bell was allowed to return to Razmak.

Arap Khan intended to use Sq. Ldr. Capel as an hostage and threatened to place the officer on a possible target if bombing were resumed. The British authorities warned Arap Khan that if the prisoner were not released in 48 hours or if he were harmed, bombing would be resumed.

The result of this action was the immediate despatch of the officer in charge of Arap Khan's son to Sara Rogha for surrender. Sq. Ldr. Capel reported that he was well treated and had been placed in a certain target area where he was able to observe the effect of the previous bombing.

The incident shows the effectiveness of the bombing operations, as other sections of the tribe had obviously brought pressure to bear on Arap Khan to make him surrender the prisoner he had bought in order to avoid a form of punishment they had reason to dread.

The Halton Magazine.

Air Commodore Lambe in a foreword to the second number of the *Halton Magazine* says that the success of the first number must be very encouraging both to the contributors and to the hard-worked Editor and he feels sure that the Magazine is appreciated by everyone on the Station.

Halton certainly ought to be proud of its Magazine and as 5,000 copies of the first number were sold it is apparently going to be well supported. The new number contains 28 pages of advertisements which makes it possible to sell the magazine at the very low price of 6d. This number is even better than the first. There are 13 pages of photographs and 10 cartoons. The articles include the R.A.F. in Iraq, Station Sports, School Notes, Aerial Pageant, Walking Tours, the R.A.F. in Palestine, and Wembley, among their subjects. A description of two days at sea in the *Argus* is interesting and so are the Workshop Notes which show how the various Entrées are progressing with their training.

The Barrington Kennet Trophy has been won again by No. 1 Section with 150 points against No. 2 Section's 130.

"Felix" is completely deleted in a few lines beginning "Madness embodied in a feline form"! A clever little sketch showing a not very happy A/A. sitting on a fence smoking a cigarette, is called "This Freedom."

A specially bound copy of the *Halton Magazine* has been graciously accepted by Group Captain H.R.H. the Duke of York.

THE R.A.F. SPORTS BULLETIN.

Lawn Tennis.

The R.A.F. Lawn Tennis Championship Meeting was held at Queen's Club on July 21, 22, 23, 24 and 25. The semi-finals and finals in each Championship were as follows:—

R.A.F. SINGLES CHAMPIONSHIP (SEMI-FINAL)—Flg. Off. C. F. Roupell (holder) beat Flt. Lt. J. Duminy (6-4, 6-1); Sq. Ldr. H. J. F. Hunter

beat Sq. Ldr. R. E. Saul (6-3, 6-2). (FINAL)—Flg. Off. C. F. Roupell (holder) beat Sq. Ldr. H. J. F. Hunter (6-2, 8-6, 6-2).

R.A.F. DOUBLES CHAMPIONSHIP (SEMI-FINAL)—Sq. Ldr. Hunter beat Sq. Ldr. Saul and Flt. Capt. Roche and Flt. Lt. Smith (6-2, 6-2). Flt. Lt. Williamson-Jones and Flg. Off. Davies beat Flt. Lt. Duminy and Flg. Off. Roupell (5-7, 8-6, 7-5). (FINAL)—Sq. Ldr. H. J. F. Hunter and Sq. Ldr. R. E. Saul beat Flt. Lt. C. E. Williamson-Jones and Flg. Off. E. D. H. Davies (8-6, 6-4, 6-2).

R.A.F. PLATE (SEMI-FINAL)—Flt. Lt. E. D. H. Davies beat Flt. G. E. R. Smyth (6-3, 8-6). Flt. Lt. P. C. Livingston beat Flt. N. H. Hampton (6-3, 3-6, 6-4).

R.A.F. VETERANS' CUP (FIRST ROUND)—Grp. Capt. S. Jones beat Wing. Cdr. H. R. Nicholl (6-0, 6-3); Sq. Ldr. P. Young beat Cdr. E. R. C. Manson (6-2, 6-0); Wing Cdr. H. W. Scott beat Commodore D. Pilcher (6-2, 6-3); Flt. Lt. F. T. Boucher beat Sq. N. H. Hamilton (6-2, 6-0). (SECOND ROUND)—Wing Cdr. L. A. beat Grp. Capt. Jones (6-0, 6-1); Wing Cdr. Scott beat Air Commodore D. Munro (6-0, 6-2); Flt. Lt. Boucher beat Air Marshal Sir H. Trenchard (6-2, 6-1). Flg. Off. G. E. Pyre beat Off. W. J. Bray (7-9, 9-7, 6-3).

SECOND ROUND.—Sq. Ldr. P. Young beat Flg. Off. Pyre (6-0, 6-0); Wing Cdr. H. W. Scott beat Air Commodore D. Munro (6-0, 6-0).

SEMI-FINAL ROUND.—Wing Cdr. Louis Greig beat Sq. Ldr. Y. (6-0, 6-0); Flt. Lt. F. T. Boucher beat Wing Cdr. Scott (6-3, 6-2). FINAL.—Wing Cdr. Louis Greig beat Flt. Lt. F. T. Boucher (6-2).

The trophy presented by the Lawn Tennis Association for the Annual Inter-Services Championship was won at Queen's Club on July 26 by the Army. The Army scored nine, R.A.F. seven and the Navy two. The results were:—

SINGLES.—Flg. Off. C. F. Roupell (R.A.F.) beat Flt. Lt. H. T. S. (Army) (5-7, 6-1, 7-5); Sq. Ldr. H. J. F. Hunter (R.A.F.) beat Flt. Cdr. H. A. Packer (R.N.) (7-5, 6-0); Flt. Lt. C. E. Williamson-Jones (R.A.F.) beat the Rev. W. H. M. Aitken (Army) (6-4, 1-6, 6-1); Maj. N. G. Holmes (Army) beat Hunter (R.A.F.) (6-3, 6-1); (Army) beat Eng. Lt. Cdr. A. Eveleigh (R.N.) (6-0, 6-1); Pay J. M. Bell (R.N.) beat King (Army) (7-5, 4-6, 8-6); Holmes (Army) beat Packer (R.N.) (6-1, 6-1); Williamson-Jones (R.A.F.) beat Eveleigh (R.N.) (6-4, 6-3); Roupell (R.A.F.) beat Bell (R.N.) (3-6, 6-0, 7-9).

DOUBLES.—Lt. Col. A. Berger and Capt. N. A. Knox (Army) beat Roupell and Hunter (R.A.F.) (6-2, 2-6, 6-4); Aitken and Capt. I. Lucas (Army) beat Williamson-Jones and Flt. Lt. E. D. H. Davies (R.A.F.) (3-6, 8-6, 6-2); King and Major L. C. Owen (Army) beat Sq. Ldr. R. E. Saul and Flt. Lt. J. Duminy (R.A.F.) (6-2, 6-0); Berger and Knox (Army) beat Bell and Capt. E. Manners (R.N.) (8-6, 6-4); Aitken and Lucas (Army) beat Packer and Lt. C. H. L. Woodhouse (R.N.) (6-3, 6-3); Saul and Duminy (R.N.) beat Pay Cdr. G. A. Cooke and Eveleigh (R.N.) (6-3, 6-4); and Manners (R.N.) beat Roupell and Hunter (R.A.F.) (7-9, 6-1); Williamson-Jones and Davies (R.A.F.) beat Packer and Eveleigh (R.N.) (6-3, 6-4); King and Owen (Army) beat Cooke and Eveleigh (R.N.) (6-0, 6-1).

Andover Sports.

The following are the results of the Athletic Sports which took place at Andover on July 9:—

High Jump.—1st, AC.1 Hicks; 2nd, Flg. Off. Alms; 3rd, I. Eakins.

100 Yards.—1st, AC.1 Withers; 2nd, Flg. Off. Alms; 3rd, I. Jeffries.

440 Yards.—1st, I-AC Craven-Griffiths; 2nd, AC.1 Hicks; I-AC. Wraight.

880 Yards.—1st, AC.1 Trout; 2nd, I-AC. Wraight; 3rd, I-AC. Wraight.

120 Yards Hurdles.—1st, Flg. Off. Harcourt-Vernon; 2nd, AC.1 H. 3rd, AC.1 Jeffries.

1 Mile.—Dead-heat, Flg. Off. Pyper; I-AC. Craven-Griffiths; AC.1 Trout.

Obstacle Race.—1st, AC.1 Clarke; 2nd, AC.1 Rhodes; 3rd, I. Hicks.

Inter-Station Relay Race, No. 7 Group.—1st, Farnborough; Netheravon.

Inter-Station Tug-of-War, No. 7 Group.—1st, Flowerdown Boys; Farnborough.

Prize for Best Athlete.—AC.1 Hicks.

The Two-Seater Light Aeroplane Competition.

The following entries for the above competition have been received by the Royal Aero Club:—

- 1, 2 and 3. The Bristol Aeroplane Company Ltd.
4. William Beardmore and Co., Ltd.
- 5 and 6. The Westland Aircraft Works.
7. The Air Navigation and Engineering Co., Ltd.
8. Short Bros., Ltd.
9. The Supermarine Aviation Works, Ltd.
- 10 and 11. A. V. Roe and Co., Ltd.
12. The Blackburn Aeroplane and Motor Co., Ltd.
13. Frank Ernest Raine.

The Entry fee is £20. This fee, together with the entry form, must be received by the Royal Aero Club not later than Aug. 22, 1924. Late entries will be received up to noon on Sept. 5, 1924. Late entry fee £40.

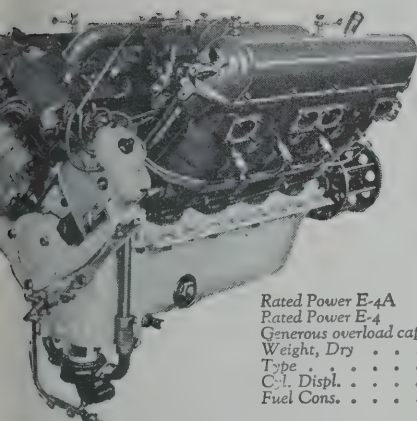
The magneto is now added to the list of engine parts which may be replaced.

An Argentine Record.

Information has just been received that Otto Ballod (recently established a World's height record for a heavily loaded machine) while flying a Fokker aeroplane (Napier engine) at Buenos Aires reached an altitude of 27,000 ft. a new South American height record.

WRIGHT ENGINES

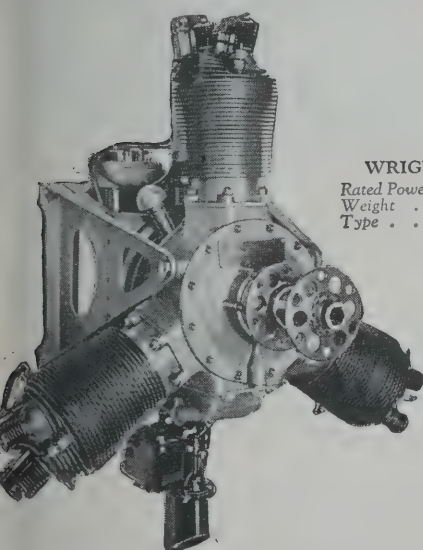
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Rated Power E-4A 240 H.P. at 2100 r.p.m.
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Generous overload capacity above rated powers
Weight, Dry 480 lbs.
Type 8-cyl., 90° Vee
Cyl. Displ. 718 cu. in.
Fuel Cons. 48 lbs. per H.P. hr.

250 HOUR DURATION TEST

The E-4 was recently tested by the U. S. Govt. for 250 hours at full throttle over 200 H. P. and 1800 revs. It gained power during this run. The extreme dependability is due to 7 years' development on this size and type. The E-4 is the sixth yearly production model and the E-4A the seventh.

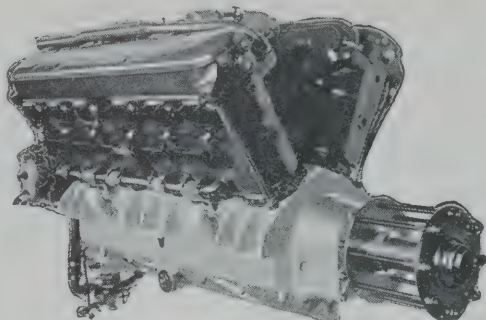


WRIGHT L-4—60 H.P.
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Weight 175 lbs.
Type 3-cyl., air cooled

The L-4, a dependable 60 H.P., lightweight engine. A very even torque is obtained. It has been flown on hard tests with the spark plugs removed from one cylinder. Low in cost, it is available for small commercial planes as well as messenger, shipboard and submarine planes.

WRIGHT T-3—650 H.P.

Rated 650 H.P. at 2000 r.p.m.
Power 550 H.P. at 1800 r.p.m.
Generous overload capacity above rated powers
Weight, Dry 1160 lbs.
Type 12 cyl., 60° Vee
Cyl. Displ. 1947 cu. in.
Fuel Cons., .45 to .5 lbs. per H.P. hr.
Length 55 3-16" Width 30 7-8"
Height 26 1-4"

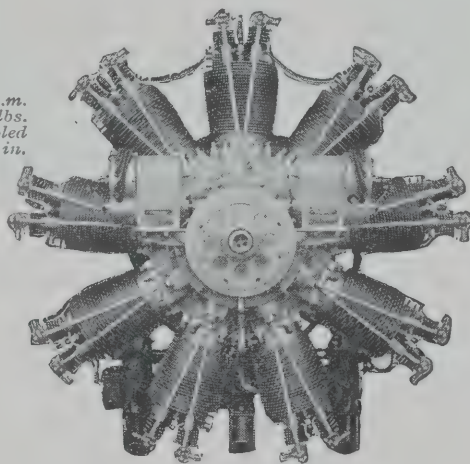


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The T-3 was developed for heavy duty in bombing, torpedo and long distance planes. The weight being only 1160 pounds and the overall sizes so compact, it has been found possible to replace lower powered engines in many types of planes. Improved performance results, without loss of radius. Engineers should check the improved performance obtainable with the T-3.

WRIGHT J-3 220 H.P.

Rated Power
220 H.P. at 1800 r.p.m.
Weight 442 lbs.
Type, 9-cyl., air cooled
Cyl. Displ. 787 cu. in.



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The J-3 is for use in training planes, shipboard planes, seaplanes and small observation planes. Simplicity, lightweight and ruggedness make this a world's leader for 220 H.P.

WORLD'S SPEED RECORD

H-3 Superfighter, 400 H.P. (Hispano Type). Weight 620 pounds, 8-cylinder, 90° Vee Water Cooled, 1126 cubic inches. F. A. I. world's speed record 500 km. at 164 miles per hour.

THE above five types of engines are all in production and no experimental types are included. Our plant is tooled up to make prompt deliveries on large or small quantities and a few of some types are in stock for immediate shipment. The prices are compatible with new aviation engines built in any other country.

Our Corporation also designs, builds and operates planes. A large staff is employed in cooperating with civil and military airplane designers, manufacturers and operators to incorporate promptly in our engines the recommendations made from flying experience. Enquiries from military, naval and civil sources are solicited.



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THE GLOBE TROTTERS.

THE ITALIAN EXPEDITION.

Signor Locatelli who together with two officers and two mechanics, is attempting to fly round the world on a Dornier "Wal" flying boat (two 360 h.p. Rolls-Royce Eagle engines) reached Brough from Rotterdam, as reported last week.

On Sat., Aug. 9 he left Brough for Kirkwall, Orkney Islands at 14.05 and he alighted at Houton Bay after 4½ hours' flying.

At 19.53 hrs. the same evening he left Houghton Bay for Stromness, Orkney Islands.

THE ARGENTINE EXPEDITION.

On Aug. 5 Major Zanni, the Argentine who is attempting to fly round the World on a Fokker with a Napier Lion engine, flew from Karachi to Nasirabad and from Nasirabad to Cawnpore, where he landed at 18.30 hrs. owing to stormy weather.

On Aug. 6 he resumed his flight to Allahabad arriving there at 09.00 hrs.

On Aug. 7 he was taking off at 05.30 hrs. when the wheels of his Fokker sank into the ground, which had been made soft by the recent heavy rains, and his airscrew was broken. A new airscrew was fitted and he left at 09.30 hrs. for Calcutta.

On Aug. 8 Major Zanni arrived at Calcutta, having made a forced landing at Isri (200 miles out) on the way. He was still at Calcutta at the time of going to press on Aug. 11.

It is to be noted that Major Zanni's time from Paris to Calcutta with the Napier engine is almost as fast as that of M. Doisy.

THE AMERICAN EXPEDITION.

On Aug. 5 Lieuts. Lowell Smith and Eric Nelson left Horna Fjord at 09.15 hrs. in a violent gale and landed in the inner harbour of Reykjavik at 14.15 hrs. Later in the afternoon Lieuts. Wade and Ogden, whose seaplane was sunk by the U.S. Navy off the Faroe Islands, arrived at Reykjavik on board the U.S.S. *Richmond*.

Since their arrival in Iceland various unfavourable reports have been received from Greenland, their next stopping place. It appears that the Danish steamer, the *Gertrud Rask*, which is carrying supplies for the flight, is held up in the ice outside Angmagsalik, the harbour chosen for the next stop. And owing to the existence of the ice pack round Greenland there have been persistent rumours that the American World Flight may be abandoned.

These rumours have been caused by the various conflicting statements issued by the American Army Air Service and the Navy. While the former say that the ice pack does not form an impassible barrier and that it is possible for the Douglas seaplanes to land alongside the vessels at sea and refuel on the water, the American Navy say that they are not going to endanger their ships by leaving them in the ice-pack region.

Lieuts. Smith and Nelson are very much against having to refuel at sea (presumably knowing something of the clumsiness of naval personnel) and even assuming that this can be done they do not like the possibility of a forced landing in the ice where rescue would be very difficult.

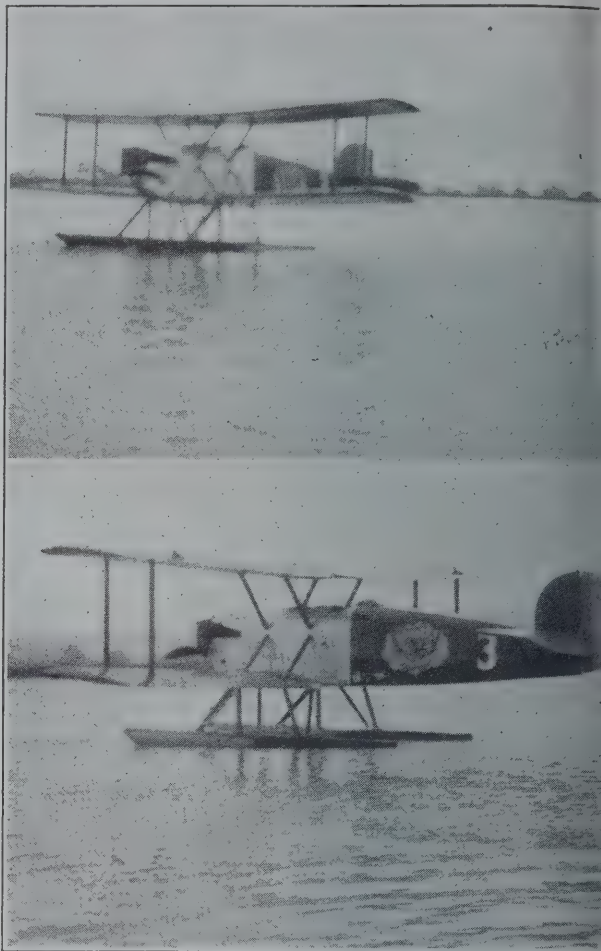
In the meantime the advance party under Lieut. Crumrine has selected Ekaluyt on the East coast of Greenland as an alternative to Angmagsalik. This point is about 750 miles from Reykjavik. From whichever base they may choose, their route will follow the coast of Greenland to Ivigtut on the west coast.

The U.S.S. *Milwaukee* will be stationed at Ivigtut and a destroyer off Cape Farewell. If the ice persists these vessels will be unable to take up their positions.

Lieuts. Smith and Nelson expect to remain at Reykjavik at least a week and they are to be the guests of the municipality so long as they remain there.

On Aug. 9 a wireless message from the *Milwaukee* reported a storm raging off the coast of Greenland and it was hoped that this storm would break up the pack ice and free the *Gertrud Rask*.

On Aug. 7 it was announced by the U.S. Secretary for War, that a spare Douglas World Cruiser which had been used at Langley Field, Va., for training purposes by members of the Expedition would be placed at the disposal of Lieuts. Wade and Ogden. It will be sent to Pictou Harbour (Pictou) Nova Scotia where these officers will rejoin the flight across America to Seattle.



THE LAST OF ENGLAND.—One of the U.S. Army World-Cruisers at Brough on the Humber, just before leaving England. The photographs were taken by Major Bumpus of the Blackburn Company.

The American Air Races.

Certain British newspapers have now disclosed the fact that the Supermarine Company and the Gloucestershire Aircraft Company are building machines for the Schneider Trophy Competition.

For good and sufficient reasons this fact has been kept dark up to the present. The American racing authority, which is the National Aircraft Association of America, has, of course, known of this ever since the British machines were entered by the Royal Aero Club and naturally those intimately connected with the Aircraft Industry in this country have known.

The time has not yet come to discuss the reason for comparative secrecy in this country and one does not propose to state the reasons until the proper moment arrives. It must suffice that the reasons are adequate and that this is not merely another of those "secrets known to everybody but ourselves" which are comparatively common in British official circles.

The Supermarine entry is a flying boat which will be driven by a Rolls-Royce Condor engine; and the Gloucestershire entry is an aeroplane on floats which will be driven by a Napier Lion engine.

There was at one time some hope of the Gloucester with its floats flying in the competition for the Pulitzer Trophy but it is apparently impossible to get the machine properly tested in time to reach America for the race.

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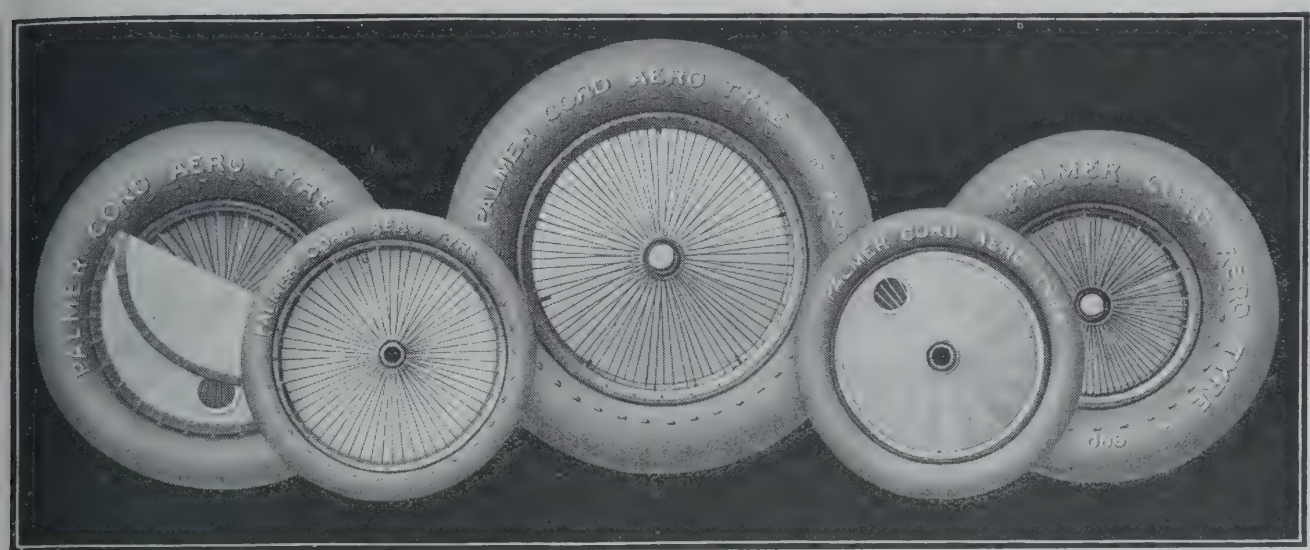
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375×55	168	m/m 111.12	m/m 25.4	m/m Central	700×100	96	m/m 178.	m/m 55.	m/m 132/46	1000×150	201	m/m 185.	m/m 60.32	m/m 125/60
300×60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	650×125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
575×60	21	160.	28.	Central	750×125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900×200	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
600×75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	800×150	82	185.	55.	135/50	1100×220	134	220.	66.67	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	"	136	250.	80.	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	1250×250	133	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
700×100	77	178.	44.45	132/46	1000×150	169†	185.	55.	135/50	1500×300	115	304.8	101.6	Central
"	92	185.	55.	135/50	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	95	185.	55.	Central	"	131	220.	66.67	Central	1750×300	139	400.	152.4	Central
					"	150	185.	55.	Central					
					"	167	185.	55.	125/60					
					"	174	250.	80.	Central					

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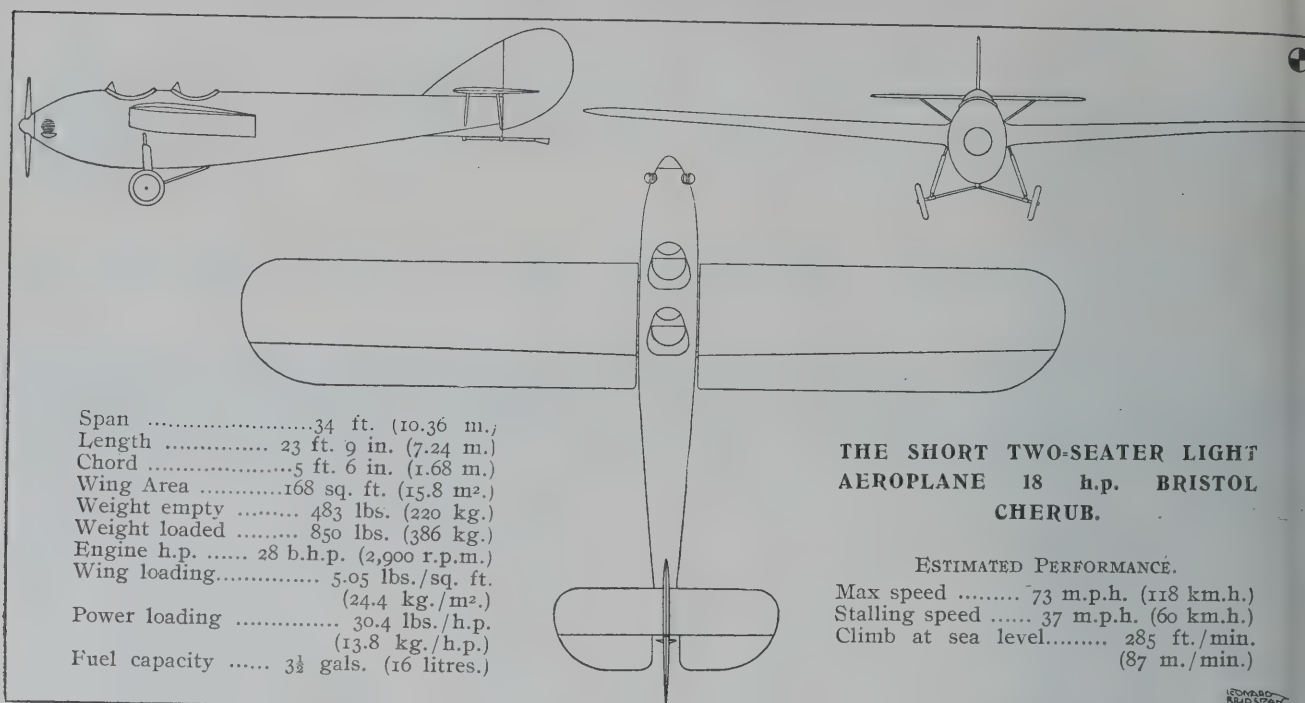
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PARIS 31, Rue la Boétie.

THE SHORT LIGHT AEROPLANE.



Span	34 ft.	(10.36 m.)
Length	23 ft. 9 in.	(7.24 m.)
Chord	5 ft. 6 in.	(1.68 m.)
Wing Area	168 sq. ft.	(15.8 m ² .)
Weight empty	483 lbs.	(220 kg.)
Weight loaded	850 lbs.	(386 kg.)
Engine h.p.	28 b.h.p.	(2,900 r.p.m.)
Wing loading.....	5.05 lbs./sq. ft.	(24.4 kg./m ² .)
Power loading	30.4 lbs./h.p.	(13.8 kg./h.p.)
Fuel capacity	3½ gals.	(16 litres.)

Length 23 ft. 9 in. (7.24 m.)

Chord 5 ft. 6 in. (1.68 m.)

Wing Area168 sq. ft. (15.8 m².)

Weight empty	483 lbs. (220 kg.)
Weight loaded	855 lbs. (388 kg.)

weight loaded 850 lbs. (386 kg.)
Engine h.p. 28 h.p. (2,000 r.p.m.)

Engine h.p. 28 b.h.p. (2,900 r.p.m.)
Wing loading..... 5.05 lbs./sq. ft.

Wet loading..... 5.05 lbs./sq. ft.
(24.4 kg./m².)

Power loading 30.4 lbs./h.p.

(13.8 kg./h.p.)

THE SHORT TWO-SEATER LIGHT
AEROPLANE 18 h.p. BRISTOL
CHERUB.

ESTIMATED PERFORMANCE

Max speed 73 m.p.h. (118 km.h.)

Stalling speed 37 m.p.h. (60 km.h.)

Climb at sea level..... 285 ft./min.

(87 m./min.)

LEONARD
BRIDGMAN
1944

A general arrangement drawing is here given showing the two-seater light aeroplane which is being built by Short Bros. Ltd., of Rochester, for the Air Ministry Competition to be held this autumn.

As may be seen the machine is a cantilever monoplane with the wing set about half-way up the fuselage. The wing is of parallel chord throughout tapering steadily in thickness from root to tip. The mean centre line camber of the section is kept constant throughout, the basic section being one of a high-speed type. The ailerons extend over the whole span and are used as camber-changing flaps to increase the speed range.

The wings are built on two spars built up of three-ply webs with laminated mahogany flanges. This construction has been adopted in order to facilitate rapid production of the competition machine, but in future machines it is intended to adopt a steel-strip construction making the machine of the all-metal variety except in the matter of fabric covering. The ribs are of duralumin built up to form Warren type girders.

The fuselage is of oval section, with a vertical axis considerably greater than the horizontal. The whole framing is

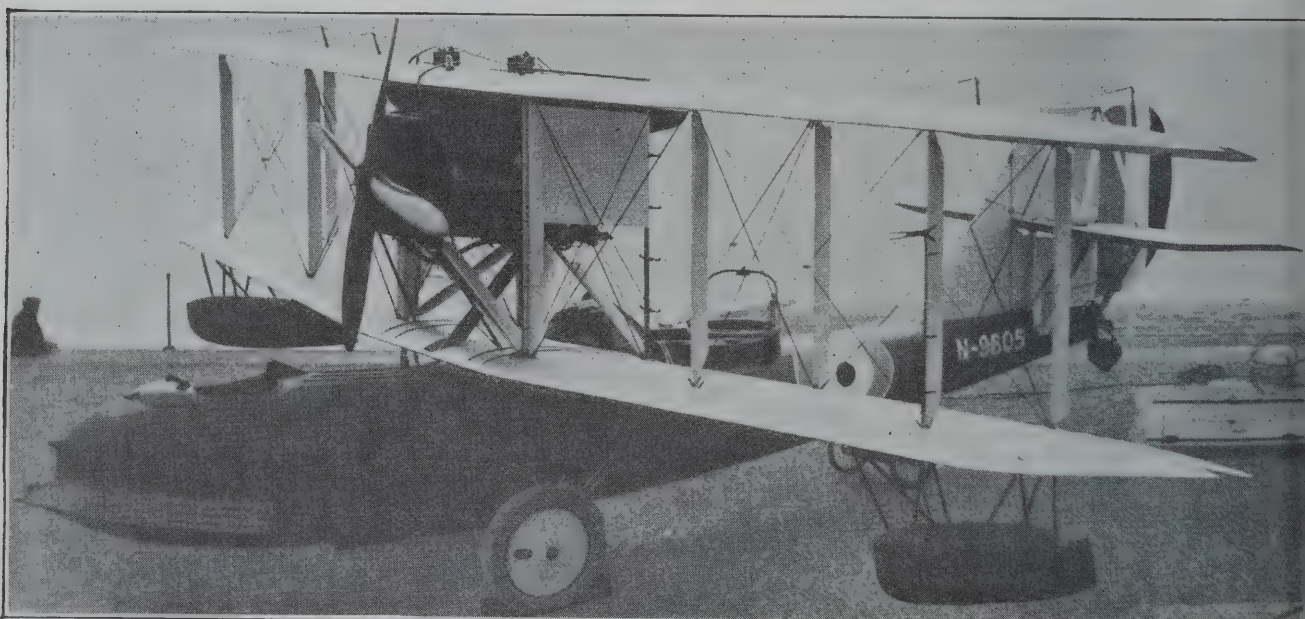
of duralumin. The two seats are arranged in tandem, one ahead of the front spar, and one between spars.

The engine—a Bristol Cherub, is mounted on an aluminium alloy casting ahead of a fire-proof bulkhead, and drives the airscrew direct. A spinner is fitted to the screw, and the engine is cowled in very completely.

Behind the fire-proof bulkhead petrol and oil tanks are carried, the feed to the engine being entirely by gravity. As required by the terms of the competition complete dual control is fitted, and the machine will carry a complete equipment of navigating instruments for the use of the occupant of either seat.

The tail unit is framed in steel tube with duralumin tubular members. The fuselage is fabric-covered and is of normal form.

The undercarriage consists of two half-axes pivoted on the bottom of the fuselage and supported by two vertical telescopic legs which contain rubber shock-absorbers working in compression. A pair of thrust rods run back one on each side, from the junction of axle and vertical leg to the bottom of the fuselage. Palmer 450 mm. x 60 mm. aero-wheels are fitted.



THE SUPERMARINE SEAGULL (450 h.p. Napier Lion engine).—A three-seater fleet-spotter amphibian flying-boat, two of which are taking part in the King's Cup Race, piloted by Capt. H. C. Biard and Col. the Master of Sempill respectively.

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A TRIBUTE TO "PUMA" AERO ENGINES.



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25th June, 1924.

Ref. PUMAS LTR.

Messrs. AIRCRAFT DISPOSAL COMPANY LTD.,
Regent House,
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164223

Dear Sirs,

We feel that you will be interested to learn how extremely satisfactory the SIDDELEY "PUMA" Engines have been which we have used exclusively in the D.H.9 and D.H.50 Machines working on THE DE HAVILLAND AEROPLANE HIRE SERVICE and SCHOOL OF PILOTS. During the past four years well over SIX HUNDRED THOUSAND MILES have been covered with a record of reliability which is remarkable. Our TAXI MACHINES have visited every country in Europe, and from the tropical conditions of Egypt to the cold of Finland the "PUMA" Engines have given faultless service.

Yours faithfully,

FOR THE DE HAVILLAND AIRCRAFT CO. LTD.

Handwritten signature
BUSINESS MANAGER

EVERY ENGINE BEFORE DESPATCH FROM OUR WORKS IS DISMANTLED FOR INSPECTION, AND AFTER RE ASSEMBLY IS GIVEN A TEST RUN.

AIRCRAFT DISPOSAL COMPANY LTD.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

TWO NEW FINNISH AEROPLANES.

The attached photographs show two new aeroplanes recently built and flown in Finland. The single-seater scout was designed by Mr. K. W. Berger and built by the Finnish Government Aircraft works at Sveaborg (Helsingfors). It is a parasol monoplane and is fitted with an 11-cylinder 160 h.p. Siemens-Halske rotary engine of German war-time design and build. On its initial tests the machine showed a top speed of 150 m.p.h., a good climb and excellent manoeuvrability. A series of these machines are to be put in production for the Finnish Army Air Force. The main particulars of the machine are as follows:—

Span	9.5 m.
Height	2.9 m.
Length	7.1 m.
Area	19 sq. m.
Weight empty	659 kilogs.
Weight per sq. m.	44.7 kilogs.
Weight per h.p.	5.3 kilogs



The other machine is a single-seater light aeroplane designed by Mr. Adaridy and built during the autumn of 1923. The engine is a 12 h.p. 12-cylinder Salmson air-cooled light plane engine. The fuselage and wings are entirely covered with Finnish birch wood. Test flights were made in August 1924, and the machine showed a top speed of 106 km.p.h. (66.25 m.p.h.), a landing speed of 35 km.p.h. (21.7 m.p.h.) and a ceiling of 4,000 m.

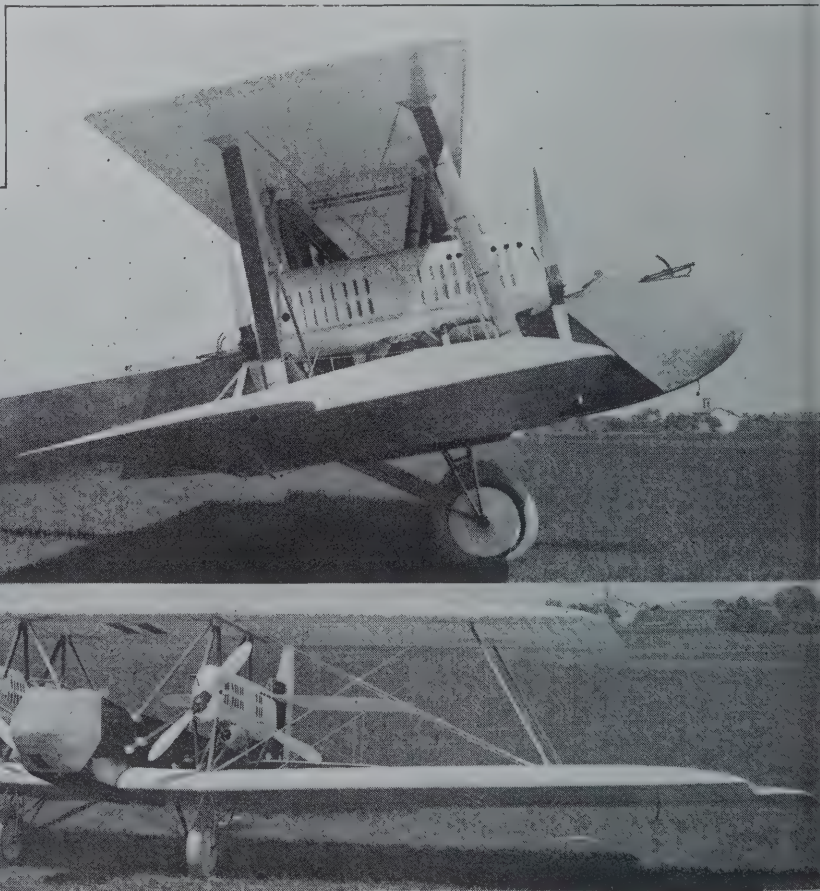
Specification:—

Span	11.5 m.
Length	7.3 m.
Area	13.5 sq. m.
Area of elevator	2.5 sq. m.
Area of fin56 sq. m.
Area of rudder6 sq. m.
Total weight, including pilot and fuel	260 kil.

Both machines are shown mounted on skis for winter flying.

THE LATEST CAPRONI BOMBER.—

The L.B.4 four-engined biplane which has just passed its preliminary tests for the Italian Government. It has four 200 h.p. S.P.A.6a engines. It is noteworthy that Signor Caproni still uses the biplane tail and elevators. The reason for the short upper plane is not evident.



1919 — 1924

PRODUCTION *of all* METAL AIRCRAFT



BOULTON & PAUL Ltd. have long been associated with the special development and production of light gauge structural members for aircraft.

The illustration shows a corner of the shop in which the products of the draw bench and rolling mill take form as spars, longerons, struts and such members.

In the background may be seen a number of metal structured fuselages in various stages of completion.

The adequate space and equipment of these workshops place Boulton & Paul Ltd. in the position of being able to deal expeditiously with aircraft production orders with which they may be entrusted.

THIS advertisement is the sixth of an interesting series of announcements dealing with the design and construction of Boulton & Paul Aeroplanes, to appear at regular intervals in this journal.

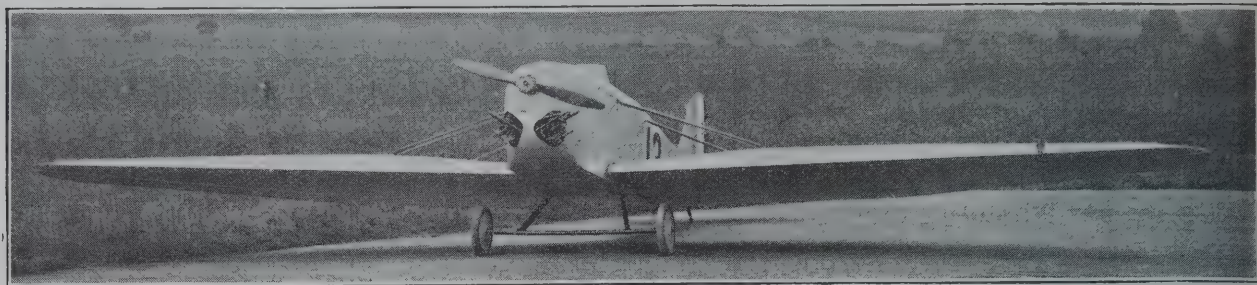
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The Parnall Pixie fitted with the Blackburne Tom-Tit engine.

Flying in Canada.

A programme of flying operations to be undertaken during the 1924 season by the Royal Canadian Air Force for other Federal Government Departments has now been drawn up.

As in past seasons, the work for the Forestry and Survey Branches of the Department of the Interior is the largest on the programme.

For 1924 an important addition is a request from the Fisheries Branch of the Department of Marine and Fisheries for a continuance and a large extension of the experimental patrols carried out last year on the Pacific coast for the prevention of illegal fishing and other allied work in connection with fishery protection. The base chosen is at Prince Rupert and extensive patrols will be carried out from there covering the entire coast of northern British Columbia and the adjacent islands.

The success of the photographic operations undertaken for the Topographical Survey Branch of the Department of the Interior is best shown in the large increase in the area to be covered by aerial surveys this year.

The details of the programme for 1924 are given hereafter with an estimate of the flying time required to carry out each operation.

DEPARTMENT OF NATIONAL DEFENCE.—Air Service:—Air Force practice, machine tests, engine tests, wireless tests, etc., 300 hours; flying training for R.C.A.F. service pilots and cadets, 1,000 hours. Total 1,300 hours.

Militia Service:—Flying as necessary in connection with Militia Courses of Instruction at Esquimaux, Sarnia, Sherbrooke, Petawawa, and Halifax, 82 hours.

DEPARTMENT OF THE INTERIOR.—Forestry Branch:—Patrol of the forest areas in the Railway Belt of British Columbia in periods of unusual fire hazard, 40 hours; routine patrols of the forest preserves on the eastern slope of the Rocky Mountains from the Clearwater River to the International Boundary, 700 hours; patrols of the forests of Manitoba, east, north and north-west of Lake Winnipeg and experimental patrols over north-east Saskatchewan, 800 hours; sketch-mapping of young timber growth areas in the French River section, Ontario, 20 hours; experimental work in forest surveying by aerial photography, 30 hours. Total 1,590 hours.

Topographical Survey Branch:—Vertical photography in Edmonton District, 520 square miles, in Vermilion district, and in Wainwright district, Alberta, 2,592 square miles, all for map-revision purposes, 59 hours; oblique photography in Edmonton district 3,224 square miles, for map revision, 24 hours; oblique photography over water courses in northern Saskatchewan including the Churchill and Reindeer Rivers and Churchill, Reindeer and Ile à la Crosse Lakes, for mapping purposes, 35 hours; oblique photography over water courses in the Kississing Lake district and of Cross Lake and Oiseau districts, Manitoba, for mapping purposes, 49 hours; oblique photography in connection with map revision in the counties of Digby, Yarmouth and Shelbourne, Nova Scotia, 23 hours; vertical photography in the districts of Windsor and New Glasgow, Nova Scotia, 10 hours. Total 200 hours.

National Parks:—Routine fire patrols in the Waterflow

Lakes National Park, included under patrols of forest reserves on eastern slope of Rockies for forestry branch survey of islands in Georgian Bay. Total 15 hours.

Water Power Branch:—Photographs of water-power developments and sites for future development. Total 10 hours.

DEPARTMENT OF INDIAN AFFAIRS:—Transportation of Indian agents to points in Norway House agency and Group 3 Candeboye agency. Total 18 hours.

DEPARTMENT OF MARINE AND FISHERIES:—Fishery patrol to prevent illegal fishing in British Columbia coastal waters. Total 300 hours.

Grand total for all Federal Departments:—3,515 hours.

Two New American Aircraft Firms.

Mr. G. M. Bellanca, designer of the Bellanca cabin monoplane, a very efficient four-passenger machine, fitted with 90 h.p. Anzani engine and produced in 1922, has formed a new manufacturing corporation and has leased the plant of the former Lawrence Sperry Aircraft Corporation. Mr. Bellanca is president of the new company, which is styled the Columbia Aircraft Corporation of Farmingdale, L.I. The company is at present engaged on an order for a series of new high-lift wings for the U.S. Air Mail Service, and it has submitted to the Post Office Department a design for a Mail aeroplane based on the recent proposals for new types.

The other new company is known as the Atlantic Aircraft Corporation, and will build aeroplanes embodying Fokker engineering practice and construction. Fokker has been represented in America for the past five years and in that time thirty aircraft have been built for the American Air Service in the Dutch factory of the firm which involved a sum of something like half a million dollars. The new company has taken over the plant of the old Wittemann-Lewis Company at Hasbrouck Heights, N.J., and in future Fokker aeroplanes will be built in America in an American factory with American personnel. The company is at present engaged on the manufacture of 100 welded steel fuselages for the American Air Service for the American D.H.4. This order has given rise to some criticism owing to the fact that the contract which was open to bid was not awarded to the lowest bidder, but the whole order was given to the Atlantic Aircraft Corporation in spite of the fact that three firms submitted estimates that were below that of the new firm.

It would appear that the reason for the awarding of the contract to the Atlantic Aircraft Corporation was to take advantage of Fokker's long experience in welded tubing.

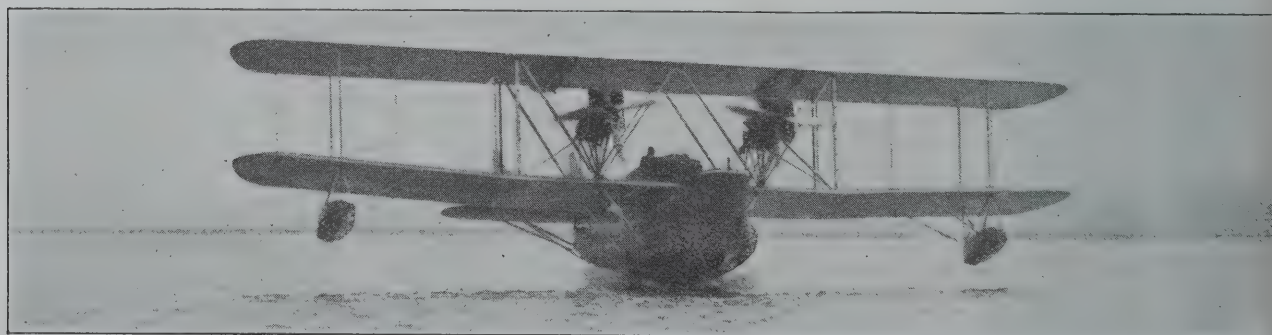
New Technical Literature.

Aeronautical Research Committee. R. & M. No. 891.—Pressure Distribution over the Wings of, and Force Measurements on, a Model B.E.2c Biplane with Raked Wing Tips. By A. S. Batson and H. L. Nixon. Price 2s. net.

R. & M. No. 894.—Full Scale and Model Measurements of Pressure Distribution round two Ribs of a B.E.2c Aeroplane with R.A.F.15 section. By A. C. Kermode and B. D. Clark. Price 1s. net.

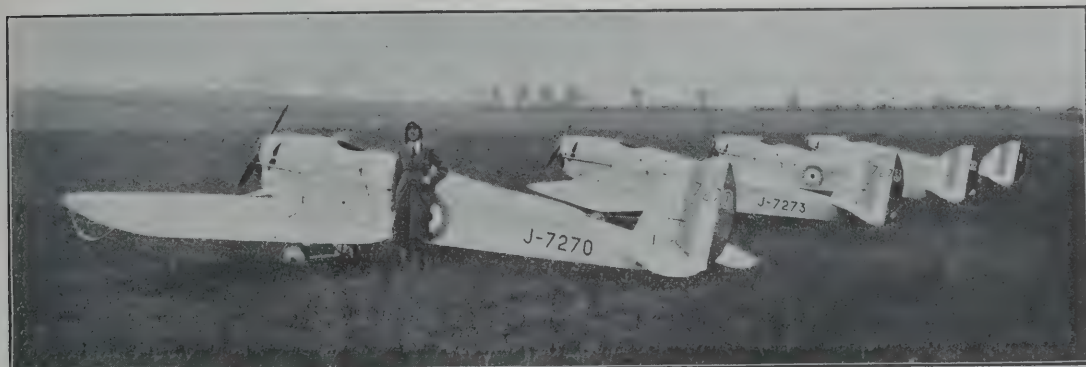
R. & M. No. 895.—Full Scale and Model Measurements of Pressure Distribution round one Rib of B.E.2c aeroplane with R.A.F.15 section. Price 1s. 6d. net.

The National Physical Laboratory Report for the Year 1923.—Price 13s. 6d. net.



JUST TOUCHING.—The Supermarine Swan Amphibian flying boat (two Napier Lion engines) alighting on Southampton Water. The picture was taken at the instant of impact and before any spray had risen.

DE HAVILLAND AIRCRAFT



A BATCH OF D.H.53 MACHINES AWAITING
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BEFORE YOU SAY—
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CONSULT—

Accles & Pollock, Ltd.

OLDBURY,
BIRMINGHAM.

MAKERS & MANIPULATORS OF
WELDLESS STEEL TUBING FOR
AIRSHIPS, AEROPLANES, GLIDERS AND
FOR ALL ENGINEERING PURPOSES.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

Owing to THE AEROPLANE having to go to press on Monday instead of on Tuesday as usual which has been made necessary by the competition for the King's Cup taking place on Tuesday it has been impossible to compile the table of statistics on the air routes. This will therefore be published next week.

Croydon Notes.

Croydon is now pursuing the more or less even tenour of its way and with the good steady run of passengers and freight is forgetting many of its past troubles. Imperial Airways Ltd. especially are doing good business and with all their machines running that punctuality is more the order of the day the lack of which was so marked in the first order of things.

Blue fuselages and white wings are to be the house colours of "The Imperial." The blue appears to be somewhat brighter than the old Instone colour but so far as one can see the only machines so far to be thus coloured are the Bristol freighter and the various models in the windows of the booking agents in London.

It is said that by next year the Berlin line will be extended to Moscow (if, but one doubts this, we still have anything left to send there that has not already been despatched by Messrs. MacDonald and Co.), the Cologne line will be through to Constantinople and the Zurich line to Rome.

Some further night-flying experiments are to be made between Croydon and Lympne shortly and for that purpose a number of Vimys and other craft have located themselves at Lympne.

A Goliath en route for Croydon forced-landed near Tonbridge on Thursday. The pilot alighted in a field near Golden Green. He overshot and ran towards a hedge. He tried to pull over this and the machine just came off the ground and sat down over the hedge which bounds the Hadlow road, completely blocking that. None of the passengers were hurt.

One met bits of the Goliath on Saturday evening wending their weary way up River Hill in sundry lorries.

Continuing the Good Work.

A good performance in joy-ride work was put up by Mr. J. D. Parkinson of the Berkshire Aviation Tours recently.

On August Bank Holiday while flying at Stourbridge carried 198 passengers in a day. The first passenger arrived at 11.30 and the last was carried at 21 hours. Mr. Parkinson said that he could easily have broken his record of 100 in the day at Holbeach last year only that it began to drizzle and became foggy at 20.30 hours and so he was compelled to stop flying.

The Berkshire Aviation Tours, and their chief Mr. F. J. Holmes, deserve a great deal more credit than they get for the excellent work they are doing in educating the people of England to appreciate and understand flying. And Mr. Holmes deserves praise for the plucky way in which he kept his various joy-ride shows going through the bad times of the past two or three years. One hopes to see him in the course develop a real taxi service.

Air Affairs in Parliament.

THE FLEET AIR ARM.

In the House of Commons on July 9, in reply to SIR T. BRAMSTON, the PARLIAMENTARY SECRETARY TO THE ADMIRALTY (MR. AMMON) said that 80 naval officers had volunteered for service in the Fleet Air Arm of whom 19 had been rejected all for medical defects which were not rendering them unfit for general naval service debarred them from service in the Fleet Air Arm.

EXPERIMENTAL AIRCRAFT.

In a written reply to a question by SIR F. SYKES on July 9, the UNDER-SECRETARY OF STATE FOR AIR said that one contract amounting to £12,400 for a civil type of aircraft was placed during 1923 and in addition contracts amounting to a considerable sum were placed for new types of experimental aircraft embracing points of special interest to both Service and civil aviation. The winner of the Aerial Derby had been purchased for £3,000. In 1924 one contract for a civil type of aircraft had been placed amounting to £9,800. Contracts were also to be placed for five civil machines of two new types which would involve some £40,000. MR. LEACH said that money was being spent on experimental types of interest from both points of view. A contract of £26,000 for three special machines for experiments connected with control at low speeds had been ordered at the request of the Aeronautical Research Committee.

THE PAGEANT.

Replying to SIR H. BRITAIN in the House of Commons on July 9, the UNDER-SECRETARY OF STATE FOR AIR said: The first and primary object of the pageant is to hold for the Royal Air Force what is being found necessary in all Services—an annual inspection and review—as a means of ascertaining the degree of efficiency that is being maintained and as a test of individual and collective skill. In respect this pageant corresponds somewhat to the reviews which take place in the other Services at Spithead and Aldershot. The second

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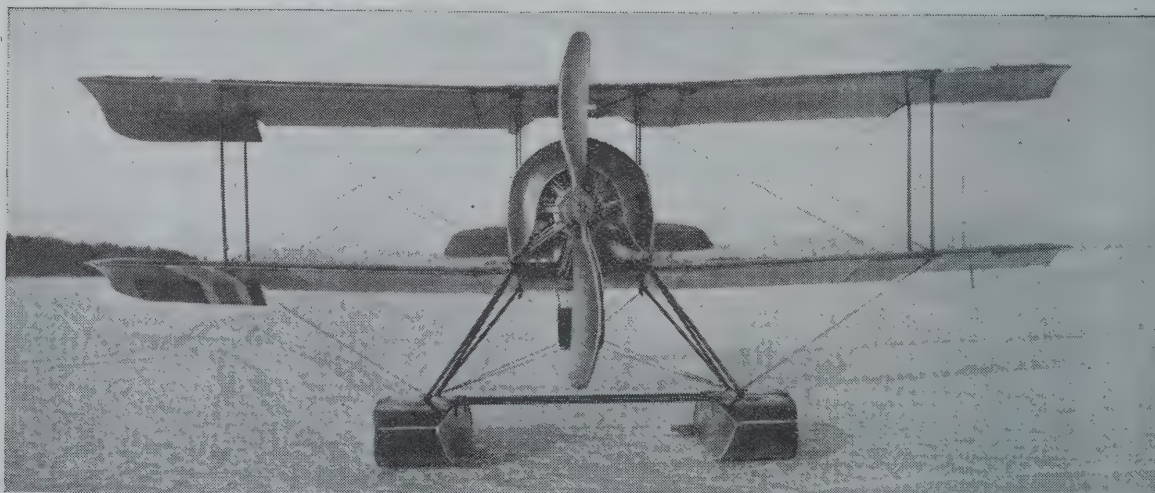
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Experimental Factory, Aerodrome and Seaplane Base,

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Early type Blackburn Seaplane 2-seater. Constantly landed on fords in Norway.

16 years ago the Blackburn Company built its first aeroplane. To-day their seaplanes and aeroplanes have a world-wide reputation for performance and endurance. A reputation obtained through sound engineering design, the highest standard of workmanship and rigid inspection.

Contractors to the Leading Governments of the World.

THE BLACKBURN AEROPLANE & MOTOR CO., LTD.,

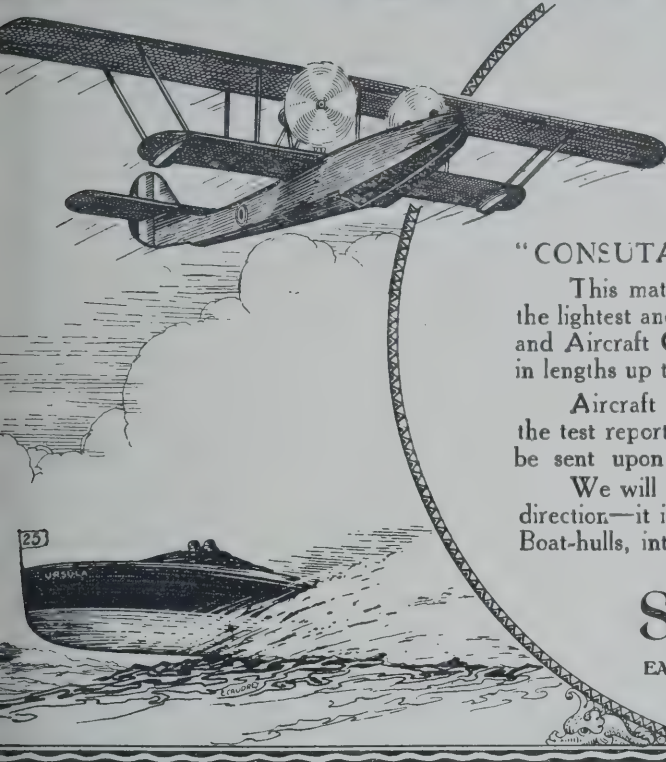
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For

NAVAL and MILITARY SERVICES.

SPECIALISED form of construction for hulls, floats, internal fittings and pannellings with Saunders' Patent "CONSUTA" Super Sewn Laminated Wood.

This material is regarded, on expert authority, as the lightest and strongest material yet evolved for Marine and Aircraft Construction. "Consuta" can be supplied in lengths up to 60 ft. by 8 ft. in width.

Aircraft manufacturers will be interested to examine the test reports of this wonderful material. Samples will be sent upon request.

We will gladly give advice for its use in any other direction—it is being largely used for Motor Car bodies, Boat-hulls, interior panels, etc.

S.E. SAUNDERS
LIMITED.
EAST COWES—ISLE OF WIGHT

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object is to allow the greatest possible number of the population of this Empire to see for themselves the functions of the Royal Air Force. Thirdly it is a means of raising charitable funds for this new Service. For 1923, £5,247 was thus handed over. If the Royal Air Force Pageant ever ceased to be a "draw" near London, it would then be taken to Salisbury Plain or some other suitable spot, where it would be held annually for the objects I have named.

AIR OPERATIONS IN IRAQ AND INDIA.

In reply to a question by MR. LANSBURY on July 10 the UNDER-SECRETARY OF STATE FOR AIR said that the locality in which the raid took place resulting in the death of 146 men and 127 women and children was a desert area lying about 130 miles south-west of Djaliba which is a railway station 76 miles west of Basrah. The tribe responsible for the raid had not been bombed at any time. The raid was a tribal raid and the casualties referred to had no relationship to air raids.

In reply to a further question by MR. LANSBURY, MR. LEACH said that the chief occasion on which material damage was effected by bombing in Iraq during the past five months was in the course of punitive action against Shaikh Mahmoud's headquarters when several houses and a large tobacco store were destroyed by fire.

In reply to a series of questions by LIEUT.-CMDR. KENWORTHY, MR. LEACH said that the R.A.F. had been in action outside Iraq on two occasions since the present Government took office, on both occasions on the N.W. Frontier of India. The first was at Razmak on Apr. 19 when an aeroplane directed the fire of a section of howitzers against a village which was shelled in reprisal for the sniping of patrols in the neighbourhood. The second was on May 25 and 28 when bombs and machine guns were used against two villages of the Mahsuds who had committed several serious outrages and had been warned that if they did not comply with certain terms including the return of Hindus kidnapped and sold and the surrender of rifles, air or other action would be taken against them. Three sections complied and the fourth failed to do so and were consequently attacked.

R.A.F. PETROL CONSUMPTION.

In the House of Commons on July 24, in reply to a question by MR. HARDIE, the UNDER-SECRETARY OF STATE FOR AIR said that the present rate of consumption of petrol in the R.A.F. is a little under 3,000,000 gallons annually.

CONSTRUCTION.

On July 24 SIR T. BRAMSDON asked that the construction of aircraft might take place in the vicinity of the Naval home ports. MR. LEACH said that it was not possible for the Air Ministry to dictate to the aircraft manufacturing firms the location of their works.

CIVILIAN PILOTS' LICENCES.

On July 24, in reply to a question by SIR F. SYKES, MR. LEACH said that 137 practical tests had been carried out for civil pilot licences since the Air Ministry undertook the work. Between July 15, 1921, and July 23, 1924, of the 61 applicants who had not flown regularly for six months or more, 36 passed the practical tests and 25 failed.

FLYING PRACTICE.

On July 28, in reply to a question by SIR F. SYKES, the UNDER-SECRETARY OF STATE FOR AIR said that the amount of flying carried out under peace conditions by the R.A.F. had not yet reached the figure which the Air Council considered should be attained. The amount was slowly increasing and the Council were satisfied that adequate R.E. and regular flying practice for all officers on the General List being ensured.

PERSONAL NOTICES.

BIRTHS.

BLOFIELD.—On July 30, at a London nursing home, to Dorothy, wife of Bernard L. Blofield, Flg. Off. R.A.F.,—a son (stillborn).

DIGBY-JOHNSON.—On Aug. 1, at Lincoln, to Marjorie (Beeching), wife of Sq. Ldr. E. Digby-Johnson, A.F.C., (R.A.F. daughter).

HAY-CURRIE.—On July 30, 1924, at 2938, Cedar Hill Road, Victoria, B.C., to Betty, wife of Capt. Philip Maynard Hay-Currie (late R.A.F.)—a son.

INSTONE.—On Aug. 3, at 16, Avenue Road, Regent's Park, N.W.1, to the wife of Sir Samuel Instone—a son.

RICHARDSON.—On July 27, to Mary, the wife of Capt. C. R. Richardson, the East Yorkshire Regt., and R.A.F. Depot, Uxbridge—a son.

STEVENS.—On Aug. 7, at a nursing home in Ramsgate, to Marguerite (née Jarraud), wife of Sq. Ldr. George Stevens, R.A.F.—a daughter.

MARRIAGES.

BAKER-ANDERSON.—On Aug. 2, at Long Crendon, Sq. Ldr. G. B. A. Baker, M.C., R.A.F., second son of Colonel W. W. Baker, R.E., retired, and Mrs. Baker, of Ashleigh, Reading, to Mary, younger daughter of Mr. and Mrs. A. M. Anderson, of Long Crendon, Thames, late of Formby, Lancs.

STEVENS-LIDDLE.—On Aug. 7, at St. Augustine's, Thorpe, Charles H. A. Stevens, R.A.F., son of the late Lieut.-Col. A. F. Stevens, I.M.S., and Mrs. Stevens, grandson of the late Sir Charles C. Stevens, K.C.S.I., I.C.S., to Daphne Joan Emmie, daughter of Mr. and Mrs. George J. Liddle, of Waverley, Thorpe Bay.

FORTHCOMING MARRIAGES.

FRY-CARRINGTON.—The marriage arranged between Flt. William Mayes Fry, M.C., R.A.F., and Katherine Mary, elder daughter of the late Major-General Sir Frederick Carrington, K.C.B., K.C.M.G. and the late Mrs. Treppin, will take place on Aug. 20, at Colesbourne Church.

PEARCE-PEDLEY.—The engagement is announced between Frederick Laurence Pearce, R.A.F., only son of Mr. and Mrs. R. Pearce, of Kingsgate, and Joyce Mary, only daughter of Mr. and Mrs. F. Pedley, Edgbaston, Birmingham.

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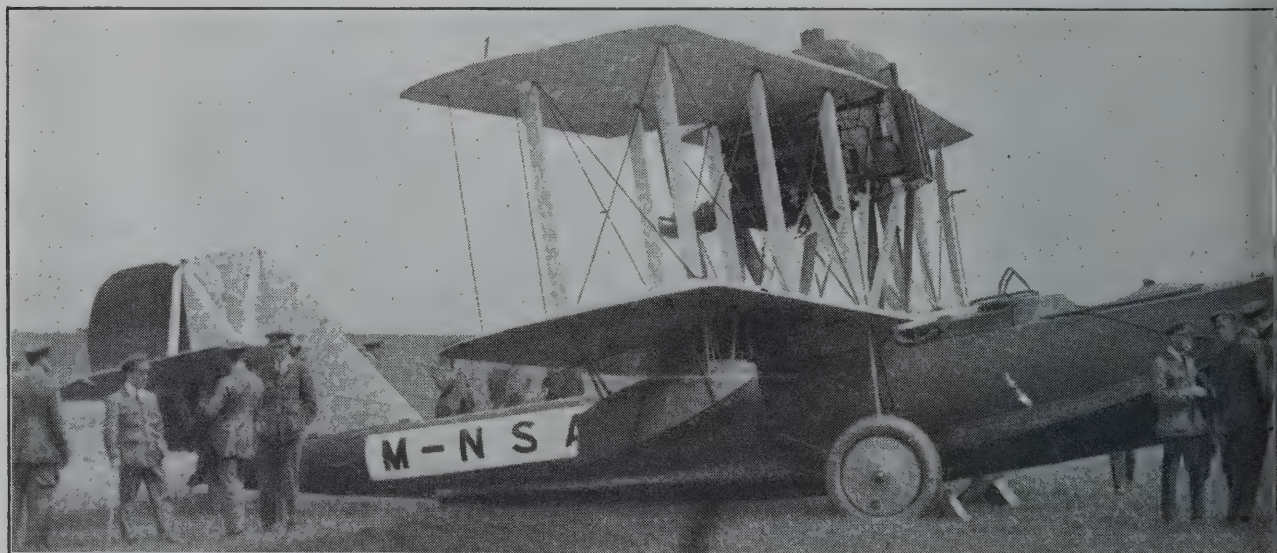
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INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. C. Grey

Vol. XXVII. No. 8. SIXPENCE WEEKLY.

Registered at the G.P.O. as a Newspaper.

"HE COUNTED THEM AT BREAK OF DAY, BUT——"




THE START FOR THE KING'S CUP COMPETITION:—Martlesham at 5.30 a.m. Left to right, the two Supermarines (Napier Lions), the two De Havilland 50s, (Siddleley Pumas), the Martinsyde (Viper), the De Havilland 37 (Sylvia) (Rolls-Royce Eagle), and the Vickers Vixen (Napier Lion). The two Armstrong-Whitworth Siskin IIIs. (Jaguar engines) are out of the picture to the right.

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Foreign 3 months, 8s. 9d.; 6 months, 17s. 6d.; 12 months, 35s.
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ON THE KING'S CUP COMPETITION.

By C. G. GREY.

Opinions seem to differ rather considerably as to the success otherwise of the Competition for the King's Cup this year. A good many people regard it as a waste of petrol and energy, in that it did not produce any startling performance in speed or in the way of a non-stop flight. And they argue that a lot of good machines and the lives of a lot of people were risked for no good purpose. Others argue that the performances of the seven machines which got through to the finish have re-established the prestige of British aeroplanes and British engines and British pilots which received such a nasty blow when M. Pelletier made his meteoric dash to Calcutta. As a matter of fact the nasty blow was chiefly given by the British news-sheets which lauded the good M. Doisy to the skies and ignored the much stouter efforts of Wing-Commander Goble and Mr. MacIntyre in their flight round Australia.

However, be that as it may, whatever one may think of the course for the King's Cup Competition, it set land machines to fly over 400 miles of open country and set seaplanes to fly over about as many miles of sea. There is no doubt about the splendour of the performances of the pilots.

Cardinal of the Mother Church once said that a man should work as though he were going to live for ever and that he should live as though he were going to die next day. It is a fine philosophy even though it may be distorted into "Let us eat drink and be merry for to-morrow we die." It is more or less the philosophy of every aviator, and especially is it the mental outlook of the pilot who, for the honour of winning the King's Cup for somebody else, risks the entrant of his machine, and for the chance of winning a paltry money prize, will deliberately set out to fly down the length of the Irish Channel on a machine which may let him down at any moment.

How great was the chance of being let down is shown by the fact that out of ten starters three were forced to drop out of the race, two others suffered from breakdowns, and with less luck might have caused bad accidents, and the other only got through because his engine had two magnets instead of one as in motor-car practice.

Which explains why there is little or no betting on air races as yet. The whole thing is too much of a gamble, and one tried to demonstrate to a sporting little lady who argued that one ought to be safer in betting on an air race than on a horse race because air racing was so much safer; every pilot and every maker was out to win whereas in a horse race one never knew whether the jockeys in the stable were really trying,—a perfectly logical argument as is her custom. Despite the warning that it was ten to one against any chosen machine getting through at all

she elected to back Mr. Cobham's De Havilland 50 because he was third two years ago and second last year and so ought to be first this year. Which is about as good a reason for backing him as the reason for which anyone backs a horse.

Thereafter she selected the Siskin III piloted by Mr. Jones, by the process of shutting her eyes and digging a finger at random into the list of starters. And Mr. Jones did fastest time. So now there is no sound argument against betting on air races, either for a win or fastest time.—Bookmakers please note, for the fraternity seems to be missing golden opportunities.

THE GOOD OF THE RACE.

But in all seriousness the competition—or race, as most people prefer to call it although it was a time-scramble and not a first-past-the-post affair—was a fine technical achievement and does certainly demonstrate the soundness of British aircraft and the skill of British pilots. In previous years the race has been spread over two days. This year it was all done in one day, and most competitors only took half a day.

Others have flown as far in the day, but not under the same pressure. The King's Cup course measured as near as no matter 960 miles, and it was covered at racing speed with only one or two stops. M. Doisy covered as great a distance on certain days, but at cruising speed. Commandant Vuillemin covered over 1,000 miles from Constantinople to Marseilles in a very long day with several stops.

Mr. Jones covered this course in about 7½ hours including one stop for petrol at Castletown in the Isle of Man (a speed of 125 odd miles per hour) and his Siddeley Jaguar gave no signs of trouble. Mr. Cobham on the D.H.50, which was entered by Sir Charles Cheers Wakefield of Castrol fame, also made the journey with one stop for petrol at Ayr race-course, and though one of his magnetos gave out and slowed his engine somewhat, the engine itself behaved perfectly.

Mr. Macmillan on the Fairey III D, handicapped to give 40 minutes to the D.H.50s, which were known to be faster than his big seaplane, ran his Napier Lion full out the whole way after the first hour, which meant that it was doing 2,400 revolutions per minute and developing about 529 h.p. instead of its normal 450 h.p., and it never missed a beat the whole way, truly a wonderful performance.

Mr. Butler similarly ran Sylvia's (the D.H.37's) Rolls-Royce Falcon at full speed for the latter half of the journey and had no trouble at all.

Nobody can say anything against British engines after this fine exhibition by the Siddeley, Napier and Rolls-Royce. The only pity is that the fourth famous British engine, the Bristol Jupiter, was not represented in the race to complete the proof of our British reliability.



LEADING IN THE WINNER.—The D.H.50 (Siddeley Puma engine) entered by Sir Charles Wakefield, and piloted by Mr. Alan Cobham being led in at Gosport after winning the King's Cup.

THE RACE ROUND BRITAIN
FOR THE KING'S CUP
WON BY A
D.H. 50



ENTERED BY SIR CHARLES WAKEFIELD
AND PILOTED BY MR. A. J. COBHAM.

ENGINE—230 H.P. SIDDELEY "PUMA"
SUPPLIED BY MESSRS. THE AIRCRAFT
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THIS success of the D.H.50 is doubly interesting by reason of the fact that it is the identical Machine which won the important TRAFFIC COMPETITION at the INTERNATIONAL AVIATION MEETING held at GOTHENBURG (Sweden) a year ago.

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WINNERS AND LOSERS.

As one has said, no praise can be too high for the pilots. It is evident from their times that each of them must have kept an exact compass course. Which proves them to be excellent navigators as well as skilful pilots. It is no mean feat to keep a dead course alike over Lincolnshire fens, Yorkshire moors, Scottish hills, and bare open sea.

How good was their steering and pace-judging may be seen from the fact that soon after leaving Martlesham at the head of the hunt Messrs. Jones and Courtney both on Siskin IIIs ran into thick clouds and saw little till they came out over the Wash fifty or sixty miles to the Northward. And when they did come out they found themselves about a hundred yards apart.

Even those who failed deserve no less praise than those who won for their performances were excellent as far as they went.

Mr. Courtney, last year's winner, landed at Brough, the big Blackburn aerodrome on the Humber, with the spinner of his airscrew boss shaking loose, but he was well on time and on his course when forced to come down. *The Morning Post* on the morning of the race labelled him "a formidable racing pilot," and as the formidable Mr. Courtney he will probably be known in future. Certainly it was no lack of formidability which put him out of the race. After the race one heard from those who were at the start that his engine seemed to be running a trifle roughly, and his stopping was attributed to this. One hopes that the mystery will be elucidated, for the Jaguar has proved itself to be

so good that it can afford to explain itself if there was anything wrong.

The spinner seems to have proved an unexpected weak spot in the otherwise sound Siskin III, for Mr. Jones landed at Gosport without his spinner and explained that he had to tear it off and knock in the torn edges when it landed for petrol in the Isle of Man.

Incidentally this provided a nice little argument between sundry Royal Aero Club officials at Gosport. One said that Mr. Jones ought to be disqualified because the Siskin did not arrive with the same equipment with which he left Martlesham. Another retorted by saying that as the spinner was intended to increase his speed he was slower without it than with it and a competitor could only be disqualified for deliberately discarding something the absence of which would increase his speed. One's own question as to whether throwing a passenger overboard to make up lost time would entail disqualification was met with coldness. However, Mr. Jones did not score a place against the handicap and there was no prize for fastest time the question of disqualification did not arise. At any rate he did the best time of the race and his Jaguar was running perfectly all the time.

Mr. Biard had a narrow escape with one of the Napier engined Supermarine Seagulls. He landed on the Blaydon race-course near Newcastle-on-Tyne without an airscrew and with his starboard petrol-tank smashed and a damaged leading edge to his upper plane. One learns that when crossing the Tyne at 1,500 feet he heard a queer noise and saw the airscrew wobbling and knocking the radiator to pieces, so switched off his engine and began to glide to ground. At 1,200 feet the screw came clean off, hit the upper plane and tank, lifted itself over the top of the plane and slid off over it, happily without touching the tail or the controls. Photographs show that the airscrew took the screw shaft with it. One awaits with interest a detailed report of what happened. The Napier also can afford to explain its mishaps after all its successes.

Perhaps one may be allowed to suggest that the Admiralty ought to carry out searching experiments as to the effect on the engines of flying-boats of the vibrations caused by the tips of the airscrews being so close to the decks. This is precisely the kind of work for which the Royal Aircraft Establishment at Farnborough is intended and it will condescend to do its job.

Mr. King on the Martinsyde landed on the Town Moor at Newcastle for petrol and crashed his undercarriage, which put him out of the race. It was hard luck, for he was the only competitor who is not connected with one or other of the big manufacturing firms.

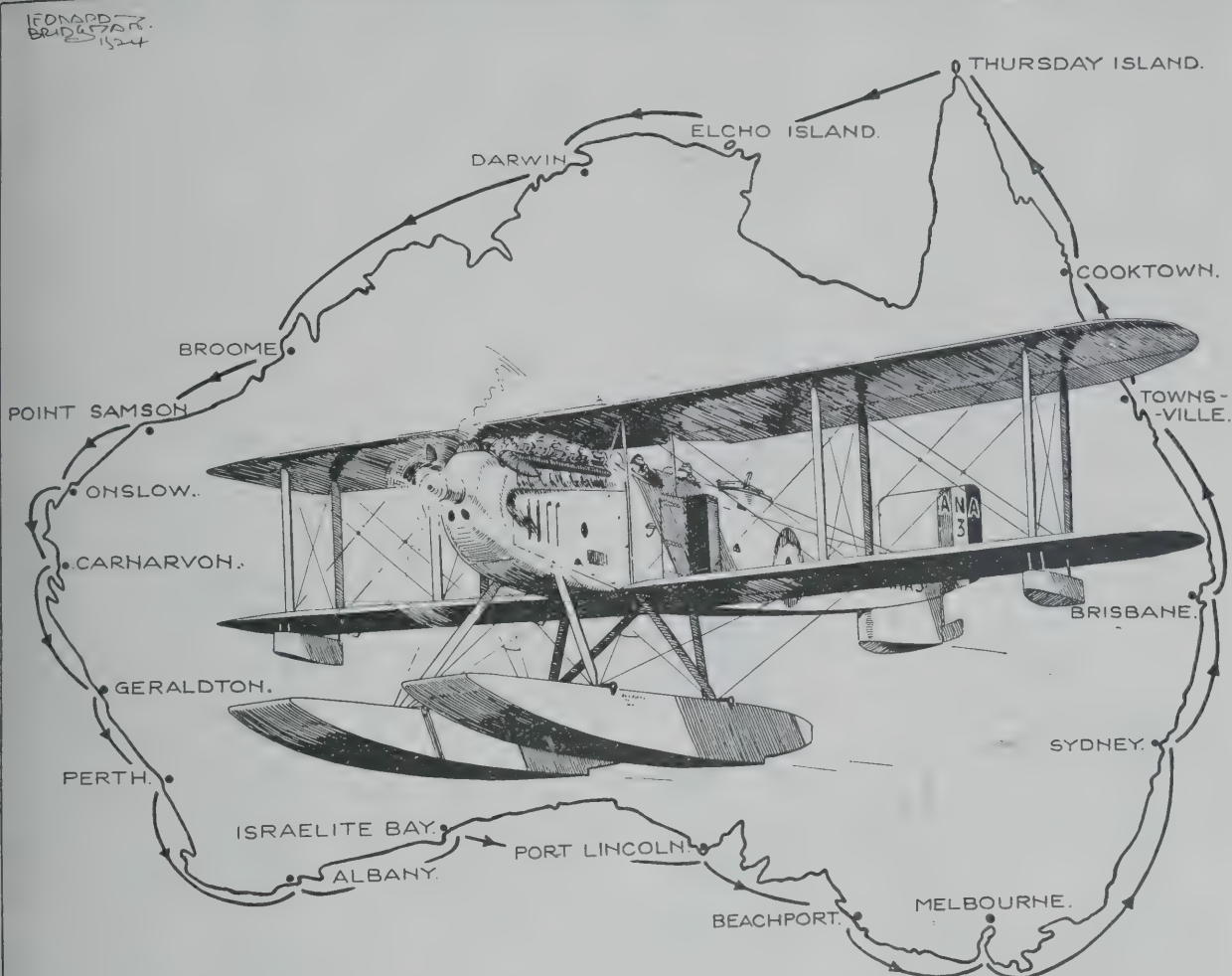
Colonel the Master of Sempill, who shared the piloting of the other Supermarine Seagull with Mr. Rea of Martlesham put up a very fine show although he finished some three



THE SECOND MAN HOME.—Mr. Norman Macmillan crossing Lee Pier on the Fairey IIID (Napier Lion Engine).



THE LAST MAN.—Colonel the Master of Sempill and the amphibian Supermarine Seagull (Napier Lion Engine) on which he put up a very fine performance.



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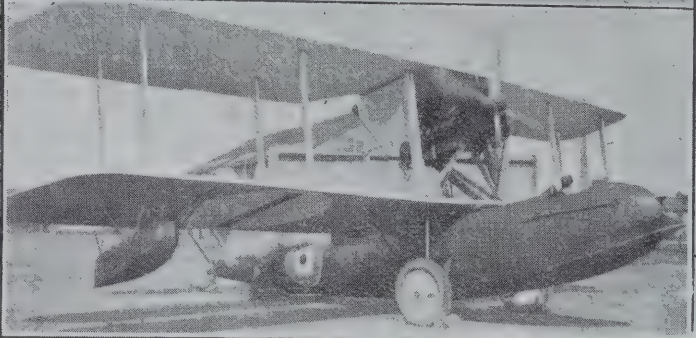
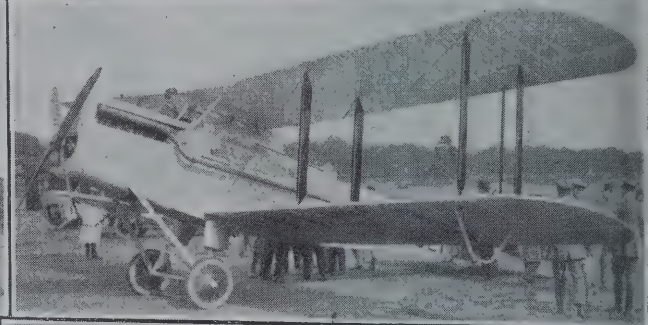
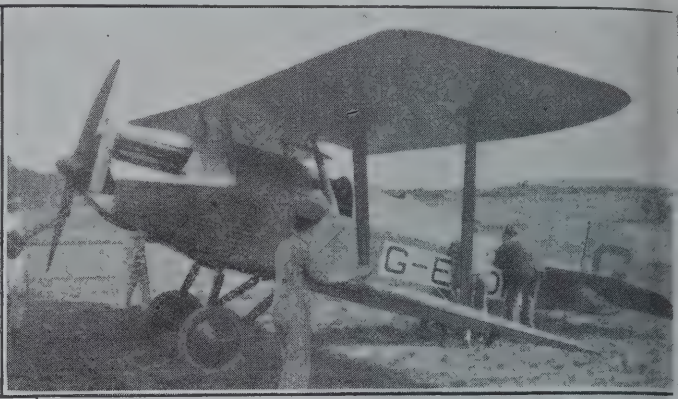
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Photographs by Leonard Bridgman

BEFORE THE START.—Mr. Courtney's Siskin III (Armstrong-Siddeley Jaguar 325 h.p.); Mr. King's (Armstrong-Siddeley Jaguar 325 h.p.); Mr. Broad's non-competing D.H.50a; The Master of Sempill's Supermarine Seagull (Napier Lion 450 h.p.); and Mr. Payn's Vickers Vixen (Napier Lion 450 h.p.).

hours behind the rest. His flying time was most consistent and his delay was caused by the breaking of a wiring-plate before reaching Renfrew. A new plate was made by the Beardmore people in record time. Also he had some little delays in starting after refuelling. His stage times were, Martlesham-Seaton Carew 2 hrs. 20 mins.; Renfrew 2 hrs. 8 mins.; Holyhead 2 hrs. 12 mins.; Padstow 2 hrs. 32 mins.; Lee-on-Solent 2 hrs. 4 mins. A total of 11 hrs. 16 mins. for 960 miles on a single-engined flying-boat is not so bad, considering that all the way down from Renfrew to Falmouth the machine had to face a 30-mile headwind, which was so gusty as to make the crew air-sick. At any rate the times show that Mr. Mitchell is entitled to a high place among our designers.

Mr. Barnard, flying a D.H.50 (Siddeley Puma engine) entered by Mrs. Theodore Instone, was put out of the race by a piece of extraordinarily bad luck. He and Mr. Cobham had kept company all the way round by Leith and Dumbarton and had arranged to fill up their tanks at Ayr racecourse. The grass had just been cut on the racecourse which was consequently encumbered with haycocks. A couple of fairways had been cleared through these and Mr. Cobham landed safely in one of them. Mr. Barnard landing at practically the same moment ran a little too far or diverged slightly from the fairway and when his machine had almost come to rest tripped over a haycock. The machine stood slightly on its nose and then fell back onto its tail again. Everybody thought that no damage had been done but when an examination was made it was found that his airscrew had been split and as there was no spare available he was out of the race.

RE-FUELLING.

Incidentally one may remark here that practically the whole cost of the race was loaded onto the competitors. Instead of having regular landing places with proper re-fuelling arrangements made by the Royal Aero Club, assisted by the petrol companies, each entrant was left to

make his own arrangements. No doubt the petrol companies assisted the competitors very largely, but for them also the cost was materially increased by the fact that each entrant chose a different re-fuelling place according to the size of his tanks.

For example the Supermarines which are absolutely standard machines with a limited cruising range had arranged four stops—at Seton Carew, Renfrew, Holyhead and Padstow. The D.H.50 with big tanks, and Mr. Butler's Sylvis had arranged to re-fuel at Ayr racecourse. The two Armstrong Siskins chose to fill up at Castletown in the Isle of Man. And the Vickers Vixen was filled up by the Shell Company in four minutes at Renfrew Aerodrome and three minutes on the sands at Swansea.

It was after the re-fuelling at Swansea that Mr. Payn of the Vixen found his oil pressure dropping to nothing when well out over the Bristol Channel. Consequently he had to land as soon as he had got to the Devonshire shore. Somehow he found a moderately flat place near Ilfracombe. There he and his passenger, Sergeant Wyatt of African fame set to work on the oil pump and got it going again. So far as one can gather nothing wrong was discovered in the pump and the assumption is that the trouble was caused by an air lock in an oil pipe when re-filling. But the delay cost them fifty minutes of good flying time.

Here one may remark that the winner, Mr. Cobham, the third man, Mr. Butler, and Mr. Barnard and Mr. King, were using B.P. petrol made at the Anglo-Persian refineries in South Wales.

Mr. Macmillan who was second, Mr. Jones who did fastest time, and the other competitors were using Shell petrol and oil, so honours were nicely divided.

THE SUCCESSFUL PILOTS.

Of the progress of the successful pilots there is little to record. As already noted Mr. Cobham flew the last leg of the course from Falmouth on one magneto, but otherwise his

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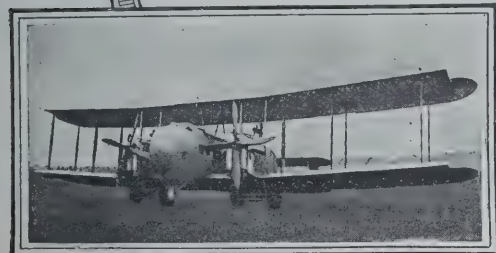
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AFTER THE FINISH, AT GOSPORT.—Mr. Cobham about to debark.—Mr. and Mrs. Cobham and Mr. Cobham's passenger.—Mr. Butler climbing out.—Sylvia and Mr. Butler's passenger.—Mr. Jones's Siskin III.—Mr. Payn's Vickers Vixen taxiing.—And Mr. Cobham alighting.

journey was without incident. Like all the other competitors he met heavy clouds and bad weather in the North in the early morning. But Mr. Cobham is so used to bad weather on his Continental journeys that Scottish clouds were of very little interest to him compared with the special breed of cloud which lies in wait for him in Alps and Pyrenees and things. And anyhow he did not meet the solitary eagle which is alleged to survive in Scotland or the stag that lurks up Stag Lane.

He landed at Gosport as if he had just returned from a test flight at Stag Lane, entirely unconcerned. Naturally he was pleased when it became clear that he had won but he was certainly not unduly elated. Mr. Cobham is undoubtedly the commercial pilot *par excellence* for he takes good fortune and bad with equal philosophy.

He certainly deserved to win after his previous efforts and it is interesting to record that the machine on which he won is the first D.H.50 ever built. In this connection it is also interesting to note that the machine on which he was second last year was the first D.H.9 (not a 9a) to be fitted with a Napier engine, and that the machine on which he was third in the previous year with a Siddeley Puma engine was the very first of the D.H.9s and was produced by the Aircraft Manufacturing Co. Ltd. in 1917. It should be noted that the Siddeley Puma engine on which he won this year was supplied to the De Havilland Company by the Aircraft Disposal Company. Also it is to be noted that on this occasion as in all previous races for the King's Cup, the winning machine

was equipped with the indicating, recording and navigating instruments of S. Smith and Sons.

Of Mr. Macmillan's performance a good deal has already been said but one must express the personal opinion that on this occasion he made the flight of his life. To begin with the machine was carrying 250 lbs. overweight with its big tanks full, and left the water weighing 5,300 lbs.—well over two tons.

He had six miles further to go than the other machine as he started from Felixstowe. Moreover one believes that the land machines were actually handicapped on the supposition that they would follow a land course which would be longer than the sea course whereas Mr. Macmillan's solitary seaplane was handicapped on the assumption that it would follow the direct sea course which would be shorter. Consequently he was asked to give longer starts than the known speed of his machine warranted. In spite of that he ran into second place in a highly creditable way.

THE PIER POINT.

Elsewhere it is recorded how Mr. Macmillan flew past the end of Lee pier instead of over it, according to the rules as interpreted by the officials of the Royal Aero Club, and was disqualified. It is also related how on taxiing up to the slipway he was told of his mistake and immediately started his engine, took off the water and flew over the pier, still in time to secure his place as second in the race. There has been a vast amount of argument over this incident so it seems

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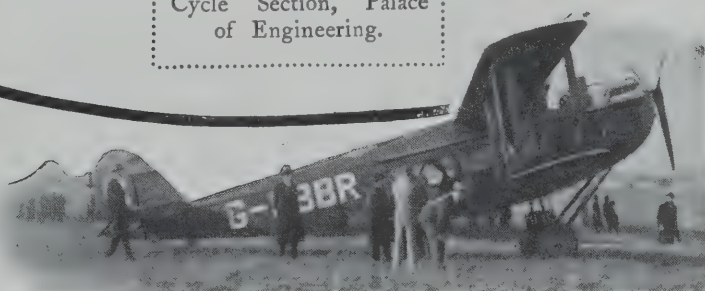
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worth while to quote the actual rule as it appears in the Royal Aero Club entry form.

It reads thus :—"The finishing line, which must be crossed in flight, will be the pier at Lee on Solent." A supplementary regulation issued just before the race says "Competitors on arriving at Lee on Solent must cross the finishing line (i.e. the pier) in flight at a height of not more than 500 feet. This may be done in either direction."

Now there is a local rule of the R.A.F. Station at Lee-on-Solent which expressly prohibits flying over the pier itself, and Mr. Macmillan having done a large amount of test flying at Hamble knew of this rule and consequently avoided flying over the pier. Considered geometrically the phrase "The finishing line will be the pier at Lee-on-Solent" would convey the impression that the judges and timekeepers would take the line of the pier extended in either direction as being the finishing line and that any machine which crossed that line would be timed accordingly, subject of course to the commonsense understanding that the machine must be sufficiently close to be identifiable. In neither of the regulations are competitors told that they must fly *over* the pier contrary to the R.A.F. regulations. Therefore one contends that Mr. Macmillan's time ought to have been taken when he crossed the line of the pier the first time.

Actually it made no difference to his place in the race and the whole affair is merely of academic interest. But it does indicate that racing rules should be made clear. The fact that the competitors at Martlesham were told verbally that they were to fly over the pier does not alter this argument. In well-regulated racing of any kind a verbal rule is, as the Irishman remarked about a verbal agreement, just worth the paper it is written on. One hopes that this incident will be a lesson to the Aero Club in future.

THE OWNER PILOT.

The third competitor in the race, Mr. Alan Butler, had a completely uneventful journey. His Rolls-Royce Falcon gave him no trouble from start to finish and his D.H.37, the famous Sylvia, behaved as usual like a perfect little lady, in fact if it were not for her speed she might be described as a thoroughly nice girl.

Mr. Butler's arrival at Gosport provided one of the quaintest little incidents in connection with the race. Having ascertained that he was third and having made sure that Mr. Cobham's D.H.50 was first Mr. Butler was preparing, as the vernacular phrase has it, to "push off" to Stag Lane when an affable R.A.F. officer reminded him that before pushing off he might be so good as to pay a five-shilling landing fee for the privilege of sitting on the grass at Gosport. Those who have any idea of what Mr. Butler must spend on running Sylvia and doing the amount of flying that he does purely for the good of Civil Aviation would have appreciated the pained expression which that demand for five shillings produced.

A few days ago as the result of inadvertently attaining a speed of approximately 40 miles an hour along a main thoroughfare in a London suburb one received a request from the clerk of a particularly benign Bench of Magistrates for the sum of £2 11s. 6d.—this including fine and costs. The odd amount produced a suggestion from a member of the staff of THE AEROPLANE that the 1s. 6d. must be for En-

tertainment Tax. One can only suggest that sporting aviators who spend their several thousands a year for the benefit of aviation should regard the five-shilling landing fee Government aerodromes in a similar way.

But one would very much like to know whether the Officer commanding the R.A.F. Seaplane Station at Lee-on-Solent charged Mr. Macmillan and Mr. Fairey five shillings for using his sea.

A MATTER OF COURSE.

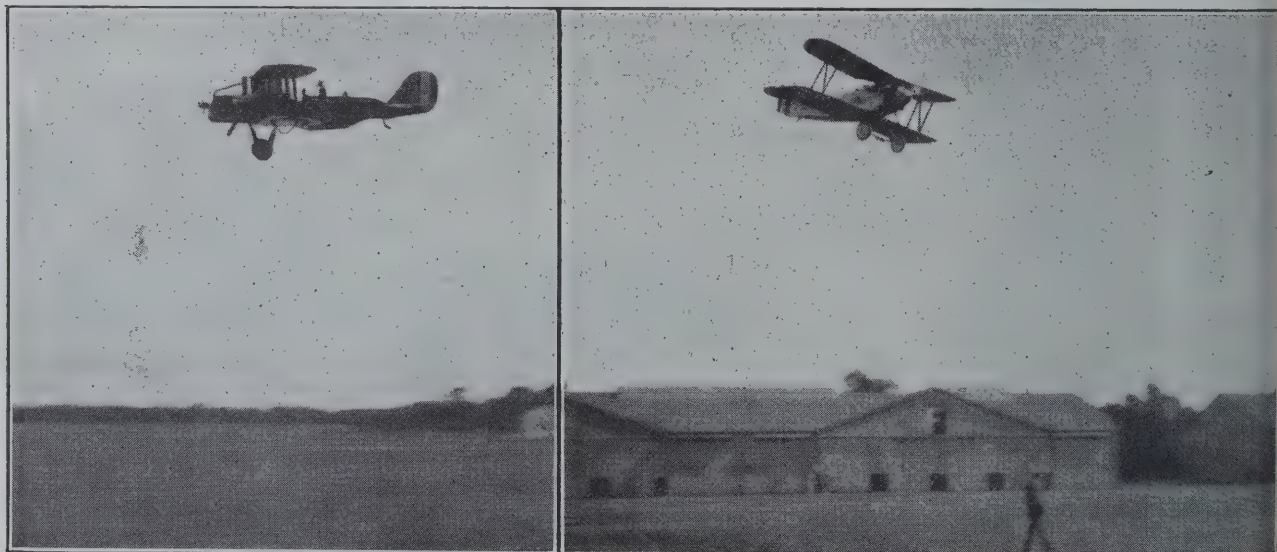
Certain outspoken competitors referring to the course for the King's Cup Race alluded to it bluntly as a damn fool course and one confesses that it does strike one that way. To ask land machines to fly over 400 miles of open sea and to ask seaplanes to fly over pretty nearly as much solid ground does seem about as foolish as may be. The excuse of some of the Royal Aero Club people is that the pilots of the land machines were quite at liberty to follow the sea coast instead of crossing the sea and that the pilots of the seaplanes, if any, could likewise stick to the coast instead of going over land. The answer to that is obviously that when a pilot is flying in a race in which his personal honour is largely involved the pilot is going the shortest way from point to point without considering his own safety.

It has been argued that in this way the course showed the gallantry of our pilots. Nobody has ever doubted the gallantry of British pilots and therefore it is simply foolish to add to the difficulties of the race the additional test of personal courage in taking risks which should be entirely unnecessary. To ask the pilots to follow the course which they did was just about as reasonable as if, supposing a competition for light aeroplanes were organised at Brooklands, the competitors were asked to follow the track used by the racing cars and in doing so were compelled to fly under the Member's Bridge and under the Byfleet Bridge just to show how brave they were as well as skilful. There are still quite enough risks in flying without adding entirely unnecessary risks.

It has been suggested that a far better course would have been from Dover to Plymouth and back twice so that the competitors would pass all the popular South coast resorts four times and would cover the thousand miles in the distance just as if they had gone partially round England as they did. Such a course would certainly have provided some millions of people with a good view of the race, it would have simplified immensely the problems of control and refuelling and so forth and it would have reduced everybody's expenses very considerably. In fact it would have been a very much better race altogether.

Apparently this course although it was suggested was turned down, largely by the Aircraft Industry because it was because primarily the King's Cup is understood to be a round-England race and secondly because some of the people in the Aircraft Industry believed that such a race would be up and down a course would not appear so impressive to possible foreign buyers of British aircraft as would a race the course of which was over land and sea without ever covering the same country twice and regardless of what might be under the machines at any one time.

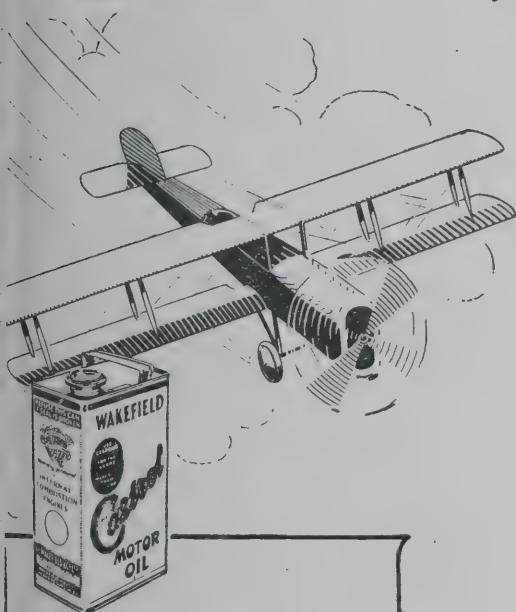
This argument sounds reasonable but personally one does not regard it as an adequate reason for making what might



FLYING AT GOSPORT.—Left,—A Westland Walrus (Napier Lion) carrying His Royal Highness Prince George, whose head is just seen at the back of the fuselage. Right,—A Fairey Flycatcher (Armstrong-Siddeley Jaguar) about to land.



Castrol ever Victorious



The King's Cup Race 1924

(1,000 miles round Great Britain).

1st. Pilot A. J. Cobham, Esq. (D.H. 50, 230 Siddeley "Puma" engine).

Entrant—Sir Charles C. Wakefield, Bart.

2nd. Pilot Captain H. Macmillan, M.C. ("Fairley" 3 D. Seaplane, 450 Napier "Lion" engine).

Entrant—C. R. Fairey, Esq.

3rd. Pilot Alan S. Butler, Esq. (D.H. 37, 275 Rolls-Royce "Falcon" engine).

Entrant—Alan S. Butler, Esq.

4th. Pilot Flight-Lt. H. W. G. Jones. (Siddeley Siskin III, 325 Siddeley "Jaguar" engine).

Entrant—Sir Glynn Hamilton West, Bart.

All the six finishers except last home used CASTROL.

Winner used CASTROL "C," others CASTROL "R."

Every King's Cup Air Race since first instituted has been won on

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America and Back (R.34).

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Around Australia in 90 hours.

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100,000 miles in 1,000 hours
(Flown on Instone Air Liner
with Napier-Lion 450 h.p.
Engine, No. 24332).



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have been a very useful and instructive race into the fiasco which it proved to be.

THE QUESTION OF AIR RACING.

All this naturally brings up the whole question of air racing as practised in this country. There is no doubt that air racing has at the moment reached a crisis. If it be properly handled next year it may be made into a great national sport. If it be mishandled next year as it has been mishandled this year the best thing that the Aircraft Industry can do is to drop it altogether.

The Royal Aero Club, from the President and Chairman and its much be-titled Council all the way down through its various committees, has made a thorough hash of air racing in the last two years. There is no doubt that everybody has done his individual best but far more harm is done in the World by well-intentioned people than by all the knaves put together. And it is a curious psychological fact that a number of intelligent men when formed or elected into a Council, Committee or suchlike body generally become collectively indistinguishable from a congenital imbecile.

The King's Cup Race this year does definitely reach low watermark as an example of lack of intelligence and misplaced ingenuity. The way in which the race was started at dawn so that the fewest possible people would see the start, the way it was run over unfrequented country and round inaccessible turning points, the way it was arranged so that the competing machines should be flying over 400 miles of empty Irish Sea at the very time of day when in populated districts people would be most likely to turn out and watch the machines pass, the way in which the finish was arranged at the least get-at-able and most uninteresting of seaside resorts and finally the way the competing machines were compelled to land in a Government aerodrome where they could only be approached by the highly-privileged few provided with special Air Ministry passes, justifies the remark of a would-be humorist that apparently the Committee of the Royal Aero Club regards air racing as a secret vice.

PUBLIC INTEREST.

There is no doubt about public interest in flying. The fact, that a couple of joy-ride pilots belonging to the Berkshire Aviation Tours have been able to take up something very like 1,500 passengers in six days at a place like Stourbridge, the fact that somewhere between 2,000 and 3,000 people either got up early or did not go to bed in order to see the start of the machines at dawn from the blasted heath at Martlesham, the fact that the daily papers devoted a couple of columns of valuable space on the day of the race and the day after to describing quite the most unemotioning competition that ever happened, the fact that almost everybody in any class of company is willing to talk aviation and apparently takes an intelligent interest in the subject, shows that if only air racing were handled in a proper way by intelligent and enterprising people it could be made a paying proposition for the competitors and for the organisers and it could be made to do splendid work for the King's Services.

As it is there is no inducement whatever for the British Aircraft Industry to bother its head about air racing. It pays very much better to make military aircraft for money. If a firm builds a first-class racing machine it does not get any orders out of it from civilian customers and at best all it does is to make a bit of a reputation for itself, which reputation is not worth as much as if the same money had been expended in building and showing off a military machine

built to the firm's own ideas free from the interference Air Ministry experts.

COMATOSE ASSOCIATIONS.

The Aircraft Industry gets no help whatever from the League which if it were run by real live people might be as powerful as the Navy League was in the days of the late Robert Yerburgh. And yet if we had a thoroughly enterprising Aero Club to organise attractive air racing, and we had a thoroughly enterprising Air League to use this air racing as a basis on which to advertise aviation we might quite easily make the British Public as enthusiastic about aviation as it has been in the past over the Navy on the fighting side and over horse racing on the sporting side.

THE AERO CLUB'S NEED.

The trouble with the Royal Aero Club is that the whole running of it has fallen into the hands of a group of extraordinarily pleasant people who are quite incompetent to manage the Club what it ought to be. What the Club needs is a big dominant personality who will put energy into the Club's activities and will make it a worthy governing body for the Sport of Aviation. Incidentally such a man might then make it a social club to which it would be possible for a young member to take a staid and respectable relative from whom he had expectations.

The Club needs greater weight and greater dignity. The time is past when the Governing body of the Sport can afford to be a kind of collective joke. It is perfectly true that other countries are in no better state, but that is neither a reason nor an excuse for the state of the Royal Aero Club.

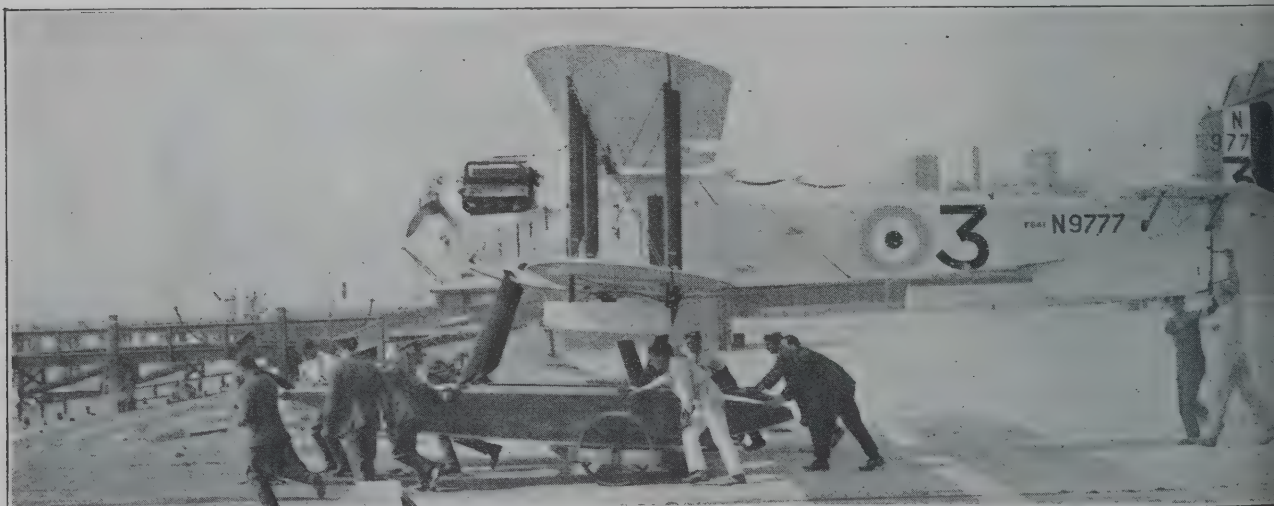
The National Aeronautic Association, which succeeded the defunct Aero Club of America, is the governing body in the States. It seems to have tied itself into a hopeless knot at any rate the Americans do seem to find people who can run a big aviation meeting such as the Pulitzer Trophy show on lines which will attract the public in hundreds of thousands. The Aero Club of France seems to have fallen in just as bad a state as our Aero Club in that the race for the Beaumont Cup (presented by Mr. Schönberg) was a fiasco and the light aeroplane Tour de France resulted in a machine staggering round the course. The German Aero Club which was a thoroughly competent body has been practically crushed out of existence by the *Commission Inter-Alliée*. And the Italian Aero Club does not seem to have done anything for years.

THE TIME AND THE MAN.

Still all that is no excuse for the failure of British air racing. It is said that the time finds the man. This is undoubtedly an excellent time for the man who is going to make his name in Civil Aviation to discover himself. What we need is somebody of about the calibre of Lord Weir, a man with business ability and experience and personal magnetism and a strong driving power, who will devote himself just for a year or two to making a success of the Royal Aero Club. It means several hours' hard work a day. It means being remarkably unpleasant to some quite well-meaning people. But it means the salvation of Civil Aviation as distinct from military air lines and air-taxi work.

If sporting flying is properly organised then the Aircraft Industry will find the money to build sporting machines. The Aircraft Industry is not going to spend money in the future on competitions mis-organised as the Royal Aero Club competitions have been mis-organised in the past.

When one talks to the officials of the Royal Aero Club



AT FELIXSTOWE.—Mr. Macmillan's Fairey III D (Napier Lion) going down the slipway to take the Crown Prince of Roumania for a flight the day before the competition.

KING'S CUP

1924

THE MACHINE WHICH WON THE KING'S CUP
CIRCUIT OF BRITAIN FLYING RACE
ON AUGUST 12th, 1924,

WAS FITTED WITH A

SIDDELEY "PUMA"
230 H.P. ENGINE

Supplied by

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LONDON."

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To Airdisco London.

"13/8/24.

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A PROOF OF PERFECT RELIABILITY.

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meets with the most plausible excuses and explanations for this, that or the other sin of omission or commission. One can argue all day with the officials of the Aero Club and always find a perfectly good specious argument put up against all one's objections. But one submits that the job of the Royal Aero Club is not to explain its failures. Its proper job is to organise successes. And it will never have a success until the whole of its internal economy is re-organised by somebody who is big enough to force the Club to success.

Therefore on the whole one may sum up the result of the King's Cup Race as follows:—From the purely technical point of view it has been a success in that it has demonstrated that standard British machines and engines can do anything that foreign machines and engines can do in the way of long distances and high-speed flying and on the whole can do it rather better. On the other hand it has demonstrated quite conclusively that the Royal Aero Club needs re-organising to-day if there is to be any sporting aviation to-morrow.

AT GOSPORT.

The actual proceedings at Gosport were uneventful and unofficial. One's chief reason for being there was that one was able to see how the machines and pilots had stood the journey.

Apocryphal which, the best *mot* of the day was made by a non-aeronautical visitor who after inspecting with interest the newly-arrived Siskin of Mr. Jones remarked:—"Wonderful! To think that that machine has travelled a thousand miles this morning and not a speck of mud on it!"

All five machines which landed at Gosport were in excellent condition. The Siskin had the battered edges of her spinner

to show, but nobody would have noticed them unless attention had been drawn to them. Mr. Butler's Sylvia looked neat as ever, but she could do with some new gold embroidery. Mr. Cobham's, or rather Sir Charles Wakefield D.H.50, the Vickers Vixen and Col. the Master of Sempill Supermarine were all in first-class condition.

They all landed perfectly and so their arrivals must have been rather boring to the non-technical onlookers, but personally one heard a lot from the pilots.

All the same there was much interesting flying by R.A.F. personnel while the competing machines were arriving. A couple of pilots on Fairey Flycatchers with Jaguar engines performed very prettily and made particularly good landings (albeit without using their wing-flaps). Two visiting pilots made emotioning gets-off on Service Siskins, one of the taking off in a right-hand climbing turn which looked like the beginning of an Immelman turn. And a sporting officer of the R.A.F. who keeps a private Austin Whippet showed how much better this size of machine would be than the officially-called "light aeroplanes" of to-day if only somebody had the pluck to make a decent engine for it. Mr. John Kenworthy was too far in front of his time when he designed this interesting little machine.

An interesting incident of the afternoon was a flight in Westland Walrus—the World's ugliest aeroplane, which is no fault of the Westland Co.—by His Royal Highness Prince George, who was piloted by an R.A.F. officer and accompanied by a Naval officer. He sat in the aftermost of the three cockpits and must have been horribly uncomfortable sitting with his back to the engine. Altogether Gosport was a very cheery place that afternoon.

THE START—BEFORE AND AT.

By LEONARD BRIDGMAN.

There is a saying, as to the origin of which one confesses ignorance, which says that "All things are sent to try us." Perhaps one should use the editorial "one" in this case more particularly as The Editor, with that illimitable foresight that enables him to pick the winners in the next war, decided that one of the more insignificant members of the staff should arise before the dawn to view the start.

The why and the wherefore of this particular King's Cup Race are difficult to understand. Apart from the sporting side of the race (and one admires the sporting instinct of the lady and gentlemen who entered machines and the pilots who flew them) one always thought that one of the principal objects of the race for the Cup graciously presented by H.M. the King was to interest the general public in aviation. This year's race has been planned obviously to amuse the one or two public who, by accident or design, happen to be in the middle of the Yorkshire moors or in a little boat in the middle of the Irish Sea at this time of the year, and to avoid the general public in their thousands who at the moment are spending the money they had saved up to pay the second instalment of their contribution to the Income Tax Commissioners at every one of the numerous seaside resorts round the coast of Great Britain.

Doubtless many somewhat hopelessly armed themselves with furs, woollies or an ice-brick and waited at those very few places where the aircraft were likely to be seen momentarily, and a glance at the map didn't offer them much hope. But one does not imagine that there was any undue excitement, even if any interest was shown.

The start of the race was due to take place at 5.30 a.m. on Aug. 12 from Martlesham Heath Aerodrome and all competing machines had to be on the aerodrome before 6 p.m. on the previous day to avoid disqualification.

When one arrived at roughly 14.00 hrs. the earliest moment permitted according to one's official pass, there were six machines in the big shed alongside the public road running across Martlesham Heath. These were the two Supermarine Seagulls (450 h.p. Napier Lion engines) which had been flown up via Felixstowe the previous day by Mr. H. C. Biard and Col. the Master of Sempill respectively, complete with Capt. Leigh Mossley and the Supermarine mechanics; two Siddeley Siskin IIIs (325 h.p. Siddeley Jaguar engines); the D.H.37 Sylvia (275 h.p. Rolls-Royce Falcon engine); and the Vickers Vixen III (450 h.p. Napier Lion engine).

At 16.00 hrs. the Martinsyde F.6 (200 h.p. Wolseley Viper) came in piloted by Mr. J. King and made an impeccable landing on the heather and taxied in. Mr. Raynham's old Martinsyde, a familiar sight at all previous air races, still glories in its yellow paint but it has recently been repainted by an artist and in its present state it looks extraordinarily well.

Somewhere round about 16.30 hrs. the Crown Prince of Roumania accompanied by the Lord Thomson, Wing Commander Gill and various members of the Prince's suite, visited the shed and the Prince made a very close inspection

of all the competing machines. Previously he had been shown round the R.A.F. sheds and a Fairey Flycatcher (325 h.p. Siddeley Jaguar) had given an emotioning demonstration of fast and slow flying, climbing, etc.

With the exception of a Fairey Fawn which was standing on the aerodrome during the early part of the afternoon and which took the air about 19.00 hrs. and a Service Armstrong Siskin painted up like a globe trotter's trunk which came over from Northolt, the Flycatcher was the only Service machine which flew during the afternoon. But then of course it must be remembered that there were a lot of photographers and other despised people of the Press about, so that all new and secret service machines were put away and the aerodrome was made to look as much as possible as if Col. Pretymann's virgin heath was before the R.A.F. commandeerer it.

Incidentally one understands that the Crown Prince of Roumania is acting as Inspector-General of Roumanian aviation, and that he has just made an extensive inspection of the French Aeronautical Industry. It seems a pity that



AT FELIXSTOWE.—The Crown Prince of Roumania (middle) going to embark in the Fairey IIID, escorted by Lord Thomson (Secretary of State for Air) and Wing Commander Rathbone, R.A.F.

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Aero Engines

THE BEST IN THE WORLD

Some extracts concerning the recent flight of 8,500 miles round Australia from "The Aeroplane" of May 22nd, 1924, entitled

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"A performance which may fairly be claimed as the finest flight in the history of aviation."

"The durability and reliability shown by the Fairey seaplane and the Rolls-Royce engine have established once more the reputation of English aircraft design and material in the esteem of the aeronautical authorities of foreign nations"

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England to Australia	11,500 miles
England to S. Africa	6,281 miles
England to Sweden (and back)	2,450 miles
England to Constantinople	2,160 miles
Across the Atlantic	1,890 miles
England to Finland	1,100 miles
England to Warsaw	1,050 miles
England to Madrid	855 miles

These flights were accomplished without any change of engines en route

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he was not shown a more comprehensive exhibition of flying at our chief experimental station.

From Martlesham he was proceeding to Felixstowe, and it was rumoured that he was going to fly in the Fairey IIID. Capt. Leigh Mossley offered to place at his disposal a Supermarine Seagull to fly over to Felixstowe and after all preparations were made for the flight it was announced that the Secretary of State for Air would not permit the flight to be made. So the Prince went to Felixstowe by road and flew in the IIID.

At roughly 17.00 hrs. a machine hove in sight and on landing it turned out to be a D.H.50a carrying the Australian registration lettering G-AUEI piloted by Capt. Broad, complete in soft felt hat and containing Mr. Leach, the Under-Secretary of State for Air, and Colonel Edwards. Mr. Leach made a very complete inspection of the competing aircraft and was then transported to the R.A.F. mess for tea.

Much anxiety and not a little dissatisfaction by certain officials was expressed at the lateness of arrival of the two D.H.50s piloted by Messrs. Barnard and Cobham, who it is understood were making the usual last-minute additions and subtractions to and from their machines. With the exception of these two machines everyone was ready for the following morning, a strange fact when it is remembered that in previous races the majority of machines have been almost assembled on the starting line.

While waiting about it was interesting to observe the methods of fuelling the machines. The B.P. method consisted of a portable Bowser pump which with many yards of flexible piping did the work with a mere turn of the handle. Incidentally at a preliminary test held at Stag Lane on the previous Saturday 50 gals. of "gas" was placed in the D.H.50's tank in 44 secs., and from the time the machine touched the ground to the time it took off after filling up the total elapsed time was 2 min. 33 secs.

By the other method observed at Martlesham to be in operation on the Supermarine Seagull a man on the top plane hauled up the familiar two-gallon cans by a rope one at a time poured the contents into the tank and let the empties down again by rope instead of just hurling them at a henchman. Truly a tedious procedure.

At 17.45 hrs. the first D.H.50a piloted by Mr. F. L. Barnard landed. This machine differed from the standard 50 in that it had a big radiator, such as are fitted to the Australian 50s for working in a hot climate, also the cabin windows had been covered by three-ply and in the cabin two standard 9a tanks had been installed. The bottom interplane strut fittings and the angle between the bottom plane and the fuselage had been streamlined with plaster or some such plastic substance, a last-minute effort to increase the knots.

With five minutes to go Mr. A. J. Cobham landed and so everyone was happy. All the machines were tucked into bed and everyone departed on their way in preparation for the morrow. What constituted this preparation does not come within the scope of this paper. One only heard rumours of a sing-song in the Martlesham Mess, whereat THE AEROPLANE's aeromoting version of Widdicombe Fair was sung at the officials of the Royal Aero Club accompanied by a cathedral organist at the piano and a Minister of State in *propria voce*.

THE MACHINES.

As to the machines there is very little to say. The Armstrong Siskin II is an all-steel version of the Armstrong Siskin which won the King's Cup Race last year. In appearance it resembles the old Siskin, although the surface of the top plane has been increased both in chord and span and instead of the two parallel struts it now has an outwardly played Vee strut on either side of the fuselage. Two large wing tanks have been added to the machine for the race which alters the appearance considerably but these are not standard fittings.

For the race the two machines were handicapped on the assumption that their top speed was 160 m.p.h. It appears that the Coventry works when asked to supply information

AERIAL TOURISM.—Mr. Leach (Under-Secretary for Air) arriving Martlesham in the cabin of a D.H. (Siddle Puma 240 h.p.) which has been built for service in Australia. It will be seen that it bears the Australian markings. The excellent protection for pilot may be judged by the fact that Mr. Broad, as may be seen, flies in his ordinary overcoat.

of their entry for the slide-rule experts to play with, stating that the machine was a Siskin III and sent a power credit of the boosted Jaguar engine. The aforesaid experts assume that the Siskin III is a development of the Siskin II, which is a logical conclusion, and therefore it would be faster than the Siskin II which won the race last year at 146 m.p.h., whereas the Siskin III is a very different proposition. As mentioned above it has quite a lot more surface area throughout of all-metal construction. However one member recounts the story as one heard it from one side and is not going to attempt to voice the grumbles that are invariably heard from competitors in handicap races, all of whom seem to imagine that they alone have been treated badly by the handicappers. Nevertheless it was obvious from the average speed of the Siskin round the course that something interfered with the sweet running of the slide-rule.

The only other machine which has not been seen in public before is the Vickers Vixen III. This has been designed by Vickers as a two-seat corps-reconnaissance fighter and is fitted with the 450 h.p. Napier Lion engine. It differs from the Vixen I and the Venture which was seen at the last R.A.F. Pageant in that it has a large nose radiator instead of the engine being cowled in and having a radiator mounted under the fuselage. The fuselage is very deep and from the pilot's seat forward the cowling slopes down slightly thus giving the pilot a splendid view forward and downward. The bottom line of the fuselage is practically straight throughout its length, giving the machine a rather clumsy appearance forward, but as usual the cowling is beautifully carried out, the whole engine with the exception of the stub exhaust pipes being covered in. The undercarriage is of the oleo type and the wheels are of abnormal size. There is only one set of interplane struts on either side of the fuselage and the main fuel tanks are carried on the top plane over the centre section struts.

The other machines with the exception of the few alterations described earlier are all standard types. The Seagulls are both standard Service machines and carried the white and blue rings.



AT FELIXSTOWE.—Mrs. Fairey, Mr. Fairey and Norman Macmillan.



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"GLOSTER," (with Napier Engine).
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WINNERS OF THE AERIAL DERBY,
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Speed, 179'5 m.p.h.

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Speed, 192'4 m.p.h.

(Machine in each of above events fitted with Napier engine.)

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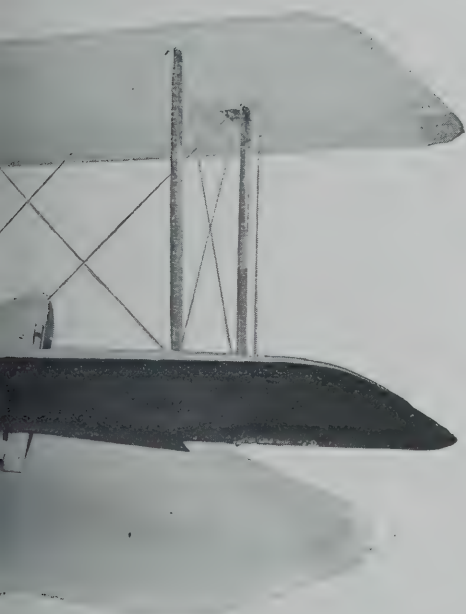
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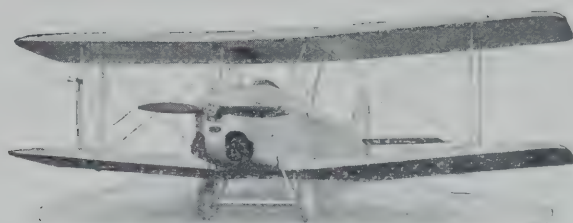


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"GANNET" Light Plane (with Blackburn Engine)

*The machine is a beautiful piece of work,
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"The Aeroplane," 17th Oct., 1923.

**HOLDERS OF BRITISH SPEED RECORD,
212.2 m.p.h.**

**RECORD CLIMB OF 19,500 FT. IN
11 MINS. 34 SECS.**

(Machines in each of above events fitted with Napier engine.)

**FASTEST TIME GLASGOW TO
MANCHESTER, IN KING'S
CUP RACE, 1923.**

**GOTHENBURG TRIALS: FASTEST
TIME FROM ROTTERDAM.**

(The two latter events with "Grebe" machine, fitted with "Jaguar" engine.)

Enquiries invited.

**SUNNINGEND
WORKS
CHELTENHAM
ENGLAND**

The Martinsyde F.6 is too well known for further description and the D.H.37 (Sylvia) is in the same category except that her black and gold paint betrays much wear. Still she is as pretty as ever and looks ready to do many more long tours through Europe.

One was unable to get over to Felixstowe to see the Fairey IID but one was assured that it was there and that it was perfectly standard in every respect.

THE START.

On the Monday night one went to bed having given instructions to be called at 04.00 hrs. Knowing the ways of people who call one in the morning one woke at 02.30 hrs. and kept oneself awake from then on in order to faint should the boots appear at the appointed hour. Needless to say one did not faint but at 04.00 hrs. one arose as fresh as a dead lark.

At 05.00 all the machines were out on the starting line facing the west and a considerable crowd of enthusiastic spectators were already assembled round the machines. By 05.15 the crowd had grown to really extraordinary dimensions considering the hour and place. The public road was lined with cars and many more were parked on the grass alongside. In addition, motor cycles, solo and side-car, push bikes and various other types of transport were arriving continuously. By time the sun had risen and the starter's flag was up for the first machine a crowd estimated at 3,000 had assembled—which shows how keen is public interest when allowed to see flying.

Punctually at 05.30 hrs. the flag was dropped and Mr. F. L. Courtney on the Armstrong-Whitworth Siskin G-EBJS

took off in a wide right-hand turn and set off on his course parallel to the line of starters. The remaining machines were despatched at one-minute intervals.

The second machine away was the second Siskin G-EB piloted by Flt. Lt. H. W. G. Jones who did a neat left-hand turn direct onto his course.

Then followed Capt. H. J. Payn on the Vickers Vixen G-EBIP who did a right-hand circle.

At this moment the Fairey IID seaplane piloted by Norman Macmillan, M.C., A.F.C., was seen away to West making North over land.

The fourth man away was Mr. J. King on the Martinsyde F.6 who did a left-hand turn to his course.

Then followed the two D.H.50s G-EBFP piloted by F. L. Barnard and G-EBFN by Mr. A. J. Cobham and finally the two Supermarines 1 and 2 flown by Capt. H. C. B. and Col. the Master of Sempill and carrying Capt. B. the Imperial Airways pilot, and Flt. Lt. Rea respectively as navigators and spare pilots.

By 05.40 hrs. all the machines were away and the crowd was slowly dissolving. That this description of the race is short is explained by the fact that the whole thing took place in very little more time than it has taken to describe it on paper.

Seeing the race from Martlesham one was pleased that it was a simultaneous start but from the spectators' point of view it would certainly have been better had the competitors started according to their handicap times, so the first man home would have been the winner. However, those in authority know best, and, after all, who are the Great British Public?

AT THE FINISH.

By GEOFFREY DORMAN.

This year's competition for the King's Cup took place with the very greatest secrecy. Very little publicity for it was sought by the Royal Aero Club and so earnest were the officials that the event should not be noised abroad that the handicapper took one severely to task for stating in print before the handicaps were worked out that the Siskin would start scratch. This he apparently regarded not only as prying into the secrets of the Club but as reading his thoughts before they were formed.

In order that as few as possible spectators should see this secret race it was started at 5.30 a.m. and the secret course was taken across the wilds of Yorkshire to Leith and Dumbarton. It was hoped that machines would escape observation here owing to the desolate nature of the country and the early hour.

The officials of the Club must have heaved a sigh of relief when they heard that Dumbarton was passed as from here onwards to Falmouth very little land was passed. With tremendous ingenuity they had hit on Lee-on-Solent as the least populated sea resort with a pier which they could use as a finishing line. Here they were enabled to have quite a secret finish as very few even of the people who had ferreted out the secret of the race knew how to get to Lee.

The pier at Lee-on-Solent is about a quarter of a mile south-east of the Lee-on-Solent Seaplane Station. The Royal Aero Club had an enclosure on the outer end of the pier where there was a telephone and swarms of officials.

When one arrived there at about 12.30 there was no news of any of the competitors having passed Falmouth.

Mr. Barnard was reported down at Ayr with a broken airscrew, having run into one of numerous haystacks. This field at Ayr also nearly did for Mr. Butler in a similar way.

Mr. Barnard had originally decided to go round without a stop. But he heard that ten minutes would be allowed in the handicap times for filling up and he heard that in a practice flight Mr. Butler's machine had been refuelled in three minutes. So on Saturday he had all the extra tanks taken out and decided to make a stop for refuelling. Mr. Cobham tells one that Mr. Barnard's machine was several miles per hour faster than his (Mr. Cobham's) so that there is little doubt that this desire of Mr. Barnard for the extra few minutes made on the filling up time cost him the race.

Mr. Biard was reported down at Durham. So far as one could gather his airscrew had come off in the air.

Mr. Courtney had been forced down at Brough owing to the fact that a rivet had come out of his airscrew spinner and Mr. King had broken his undercarriage at Newcastle. This left six pilots in the running.

As no one had been reported past Falmouth one decided to lunch and made for the neighbouring hostelry at the end of the pier the liquid department of which was run on American lines. Just as one sat down there was a roar and Flt. Lt. Jones on the Armstrong-Whitworth Siskin flew over the finishing line at a tremendous speed. As the un-mathematical ones of us had not expected any arrivals

until two o'clock or so (14.00 hrs.—to please the Editor) this was rather surprising and many people thought it not one of the competing machines so that the event at Lee passed without much interest.

Quickly finishing lunch one went back to the pier where it was learned that Mr. Butler had passed Falmouth.

About this time an extraordinary story was circulated to the effect that there had been no grumbling what among the competitors about their handicaps. This ridiculous rumour was promptly denied and it was stated that being Aug. 12 every single competitor quite naturally had a grouse. And of course if everybody is dissatisfied it means that the handicappers must be about right round.

A notice board was displayed on the pier-head giving times of the various pilots at the turning points and the waits one was amused by the performance of a 100 ft. flying-boat, apparently an F.5, which ran for miles over the water before getting off and landed with a lovely splash. The general opinion was that they ought to have some of these craft in the Amusement Park at Wembley.

Mr. Butler came in sight flying at a good speed within a few feet of the water on Sylvia thereby disproving the theory that was advanced nightly during the run of "Sylvia" by Miss Dorothy Dickson that "you can't keep a girl down." The De Havilland party standing near the pier rather anxious in case he should not have quite enough petrol to take him to the finishing line but this happened proved incorrect and for the moment he was the winner having gained 26 minutes on his handicap.

There could have been no more popular winner.

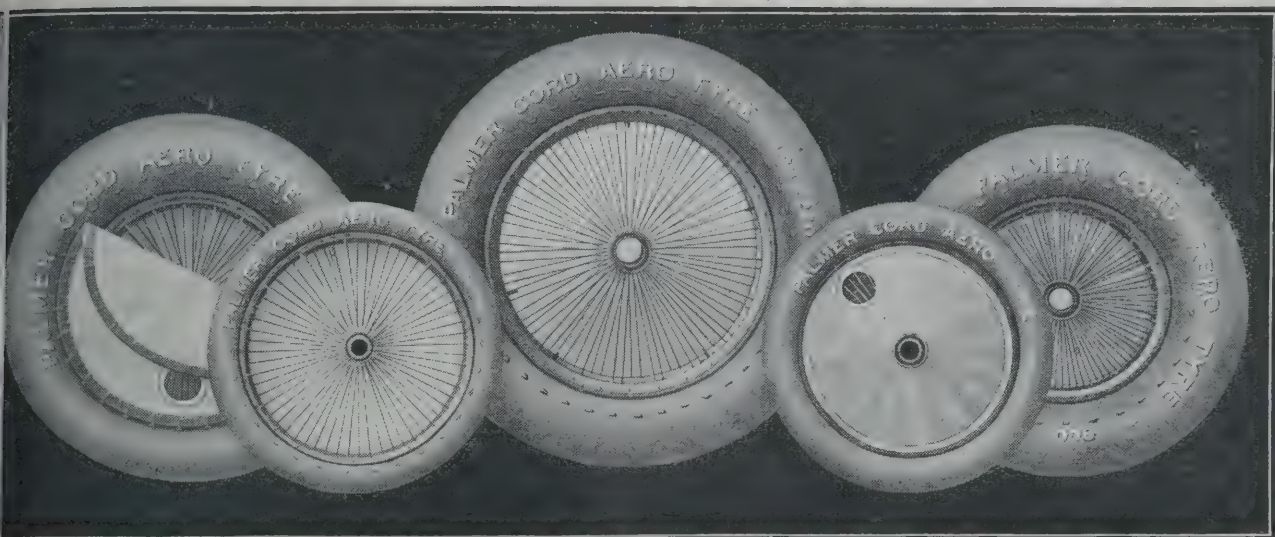


ON LEE PIER.—Top.—Lord Thomson and Lord Montagu of Beaulieu converse. Right.—Mr. Walker of De Havilland contemplates. Below.—Mr. Broad, Capt. De Havilland and Colonel Bristow discuss.



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Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore				Length	Bore				Length	Bore	
75×55	168	111.12	25.4	Central	700×100	96	178.	55.	132/46	1000×150	201	185.	60.32	125/60
100×60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	1000×180	148	220.	80.	Central
150×60	30	89.	31.75	Central	650×125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
175×60	21	160.	28.	Central	750×125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900×230	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
200×75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
250×100	77	178.	44.45	132/46	800×150	82	185.	55.	135/50	1100×220	134	220.	66.67	Central
"	92	185.	55.	135/50	"	85	185.	55.	Central	"	136	250.	80.	Central
"	95	185.	55.	Central	"	161*	185.	55.	135/50	1250×250	133	250.	80.	Central
					"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
					"	169†	185.	55.	135/50	1500×300	115	304.8	101.6	Central
					"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
					1000×150	131	220.	66.67	Central	1750×300	139	400.	152.4	Central
					"	150	185.	55.	Central					
					"	167	185.	55.	125/60					
					"	174	250.	80.	Central					

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†Wheel No. 169 is fitted with Ball Bearings.

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(240)

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Mr. Butler as his sporting career in aviation and his intense interest and keenness in the sport has given everybody a very sincere regard for him and as a pilot he is now in the first flight. He stated that he flew the whole way down from Dumbarton to Falmouth about 50 feet off the water so that the cross wind would affect him as little as possible. He expressed the opinion, which was endorsed by everybody else, that it was a "damn fool course."

Then came the incident of the day. Mr. Norman Macmillan flying the Fairey IID float seaplane came into view, his Napier engine emitting a most satisfactory roar. He flashed past the end of the pier without actually crossing over it so his was not therefore an official finish. He flew about a mile past the pier and it was hoped that by accident he would cross the pier on his return to alight. Mr. Perrin, looking like Boadicea's chariot, dashed down to the shore end of the pier hewing down the crowd as he passed and accomplished the distance in what must have been close on record time so that he got there considerably before Mr. Macmillan crossed. Not that it was necessary to have an observation taken for Mr. Macmillan clearly flew a quarter of a mile or so inland. He again failed to cross the pier and cut his engine off to alight on the water.

Shouts were raised asking if Mr. Fairey or any of his confederates were anywhere near and almost everyone on the pier dashed off in all directions to try and find someone connected with the machine. Launches went off and cars and runners went to the slip-way to catch Mr. Macmillan to tell him to take off again and cross the pier. By this time he had taxied in to the slipway where Mr. Jones of Napier's caught him and told him the trouble. From the moment that he flew past the pier the first time he had 14 minutes to keep ahead of Mr. Butler. He took off in an astonishingly short distance, did a complete right-hand climbing turn and flew across the line of the pier with four minutes to spare amid tremendous excitement and applause.

Mr. Fairey then arrived on the pier and demanded in most unfairylike tones why nobody had made an effort to find him and tell him of the error of Mr. Macmillan's way. This in view of the frantic efforts to locate him was genuinely appreciated as the best joke of the day, for Mr. Fairey is by no means easy to hide. Apparently Mr. Fairey with Sq. Ldr. Maurice Wright had arrived on the slipway about five minutes before Mr. Macmillan did though the majority of the other entrants and interested parties were on the pier-head.

Mr. Macmillan had clearly broken a vital regulation. After the incident of Mr. Barnard's start in the 1922 race the Royal Aero Club were perfectly right in enforcing the regulation to the letter. It would seem necessary in future races that an examination on the rules of the race should be included as an eliminating test. However, Mr. Macmillan was still second on time so honour was satisfied.

Just as the excitement had died down Mr. Payn arrived on the Vickers Vixen. He had had to land near Ilfracombe to repair an oil pump. This delayed him for 50 minutes which was a pity for his machine showed a fine turn of speed. Certainly the Vixen is a very businesslike looking machine in the air. One understands that great things are expected of its successor the Venture.

Considerable anxiety was now felt over Mr. Cobham as he had not been reported past Falmouth and it seemed

that he must have alighted somewhere on the way. As Mr. Cobham was on the course from Dumbarton was over the sea it was feared that he might have fallen into the ditch. Happily he was soon afterwards reported as having passed Falmouth the delay being not with him but with the telephone telegraph. Soon after half-past two he was seen coming over Calshot and it was evident that he was the winner. He flew cleanly across the finishing line and quite level down. Then he shot up into the air to about 1,500 feet whereafter he accomplished a few steep stalled turns seemed to spin down and alighted safely at Gosport. Cobham's machine was the very first of the D.H.50s and was the actual machine with which he won the Traffic Competition at Gothenburg. It will be recalled that he won the Britannia Trophy last year and his win coming on top of his previous third and second for the same cup is well deserved. He does do his job thoroughly.

The only arrival then unaccounted for was Colonel Thomson, Master of Sempill on the Supermarine Seagull. He had to arrive by a few minutes after three o'clock to win and before a quarter past three to obtain a place. As he had not arrived by a quarter past three Mr. Cobham was officially declared the winner, Mr. Macmillan second (his ten-minute lap made no difference to his place) and Mr. Butler third. This was officially announced by Lord Montagu of Beaulieu who was the judge.

The Master of Sempill finally arrived at 6.38 p.m. having had to alight at Renfrew owing to a broken flying wing. The repairing of this took a long time and he also had to stop at Padstow for refuelling.

Lord Thomson was present on the pier and showed the very greatest interest in the race. One has never seen a Minister of State so enthusiastic over his job as is Lord Thomson. He was at Martlesham by four o'clock in the morning to see the start of the race and with Mr. Broome as pilot accompanied by Mr. Leach and Colonel Edwars he flew in a D.H.50 to Stag Lane where Mr. Leach was dropped and some business enacted. He then flew on to Gosport. He expressed a desire to be flown off and landed on the deck of an aircraft carrier and also seemed very anxious to acquire a D.H.50 for his own personal use.

Capt. Geoffrey de Havilland who gives his name and brains to the De Havilland Aircraft Company flew down on his pet the D.H.51 (the Renault-engined tourer) accompanied by Mr. Walker. Capt. de Havilland showed that he has distinctly criminal tendencies, as he broke the laws of the country by flying down on the D.H.51 made safer by the addition of dual ignition. This additional safeguard it will be remembered renders the machine in the eyes of the Air Ministry unairworthy.

Mr. Walker of course is a fellow-criminal as he undoubtedly aided and abetted Capt. de Havilland and was an accessory before and after the fact. One wonders whether the Air Ministry or some other body will call down ridicule on themselves and take proceedings against Capt. de Havilland for his dastardly crime.

Capt. de Havilland was of course delighted to see the D.H.50 win and to see the chairman of the D.H. Aircraft Co. Ltd. pilot his own machine to third place. As usual there was a preponderant proportion of his design, three out of the ten being De Havillands. And no wonder that three of the De Havilland directors are always flying at

Mark.	Pilot and Entrant.	Aircraft.	Started.	Arrived.	Flying time. H. M. S.	Handicap. H. M. S.	Nett time. H. M. S.	Speed M.P.H.
G-EBDO	Alan S. Butler..... Alan S. Butler.....	De Havilland 37..... (Rolls-Royce Falcon 275 h.p.)	05-33-00	13-58-48	8-25-48	2-6-0	6-19-48	113 m.p.h.
G-EBJQ	Flight-Lieut. H. W. G. Jones..... Sir Glynn West.....	Armstrong-Whitworth Siskin III. (Armstrong-Siddeley Jaguar 325 h.p.)	05-31-00	13-05-12	7-34-12	Scratch	7-34-12	125.5 m.p.h.
G-EBJS	Frank Courtney..... J. D. Siddeley	Armstrong-Whitworth Siskin III.... (Armstrong-Siddeley Jaguar 325 h.p.)	05-30-00	(Stopped at Brough)		Scratch		
G-EBDK	J. King..... G. Le Champion.....	Martinsyde F.6..... (Viper 200 h.p.)	05-34-00	(Stopped at New castle)		2-13-00		
G-EBFN	Alan J. Cobham..... Sir C. Wakefield.....	De Havilland 50..... (Siddeley Puma 230 h.p.)	05-36-00	14-33-12	8-57-12	3-4-12	5-53-00	106 m.p.h.
1.	Capt. H. C. Biard..... Comdr. J. Bird and H. T. Vane...	Supermarine "Seagull" Amphibian (Napier Lion 450 h.p.)	05-37-00	(Stopped at New castle)		3-32-0		
2.	Colonel The Master of Sempill.... G. L. Wood and Capt. L. Mossley	Supermarine "Seagull" Amphibian (Napier Lion 450 h.p.)	05-38-00	18-38-43	13-0-43	3-32-0	9-28-43	73 m.p.h.
3.	Cap. N. Macmillan, M.C., A.F.C. C. R. Fairey	3-D Seaplane..... (Napier Lion 450 h.p.)	05-30-00	14-15-53	8-45-53	2-29-12	6-16-41	109 m.p.h.
G-EBIP	H. J. Payn..... D. Vickers	Vickers "Vixen III"..... (Napier Lion 450 h.p.)	05-32-00	14-26-01	8-54-01	1-17-12	7-36-49	107 m.p.h.
G-EBFP	F. L. Barnard..... Mrs T. Instone.....	De Havilland 50..... (Siddeley Puma 240 h.p.)	05-35-00	(Stopped at Ayr)		3-1-30		

NOTE.—Speeds are based on a total distance of 952 miles from Martlesham. Macmillan's speed is based on 930 miles from Felixstowe.

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two of them are pilots. Moreover the firm do far more practical flying than any other single firm.

Proceedings finished by a march past or a float past, whatever one calls it, of the *S.S. Aquitania* coming from New York and the designing element was set wondering whether it would be possible to fit her with wings and an amphibian undercarriage. After which one left.

From a spectator's point of view apart from those directly associated with the race it was singularly unattractive. The original idea was to start and finish the race from Gosport and Lee-on-Solent and to have had a turning point at Dover Castle. This additional two hundred miles or so it was feared would frighten away some of the smaller machines but as these smaller machines did not materialise in actual fact it would have made no difference.

The reason that all the machines were started off together one imagines was to enable the Club officials at Martlesham

to dash across to Lee-on-Solent in time to see the finish. Had they had to wait until a scratch man had been despatched it would not have given them time to get across. What they did forget was that this entirely prevented there being any finish worth seeing.

Happily the forecast of the Club officials' dash from Martlesham to Lee-on-Solent (published in last week's *AEROPLANE* and duly put to music and sung at Martlesham the evening before the race) was incorrect and there were no casualties. Colonel Bristow drove them across in his Vauxhall car with his well-known mathematical precision and they arrived without a scratch or a dent at Lee-on-Solent at 11.30.

From many points of view it was a satisfactory race from many others it was an unsatisfactory race. And how it gave several hardworking aeronautical people a dose of fresh air and exercise.

THE GLOBE TROTTERS.

THE ARGENTINE EXPEDITION.

Major Zanni and Signor Beltrame who are attempting to fly round the World with the Fokker-Napier equipment left Calcutta on Aug. 14 and made a direct flight to Rangoon arriving there at 16.00 hrs. He passed through several heavy rainstorms and dense banks of clouds which made his crossing of the Arakan range of mountains very difficult.

On Aug. 15, he left Rangoon at 07.30 hrs. for Bangkok in very cloudy weather and arrived there later in the day.

On Aug. 17 he left Bangkok for Hanoi, which he reached.

A telegram has been received by Mr. H. T. Vane of D. Napier and Son Ltd., saying "I am continuing with first engine as it has run perfectly until now."

Major Zanni is flying a Fokker C.IV with a 450 h.p. Napier Lion engine. A spare Napier was sent to Calcutta in case Major Zanni needed to change it there but his telegram shows that he is so completely satisfied with his first engine that he will carry on with it anyhow as far as Tokyo.

Major Zanni, who is accompanied by Sgr. Beltrame, left Amsterdam on July 26 and by making long daily flights covered the distance of 5,752 miles to Calcutta in 14 days which is only one day longer than that taken by M. Peltier Doisy. But for the mishap at Allahabad of a broken airscrew he would have made better time still.

THE ITALIAN EXPEDITION.

Signor Locatelli who is attempting to fly round the World on a Dornier Wal seaplane (two 375 h.p. Rolls-Royce engines) left Stromness, Orkney Islands, at 10.00 hrs. of Aug. 13, but was forced to return at 12.15 hrs. owing to strong winds.

On Aug. 15 he left Stromness in the evening and arrived at Thorshavn, Faroe Islands in 2 hrs. 10 mins. flying.

On Aug. 16 he flew from Thorshavn to Horna Fjord, Iceland, and on the following day flew on to Reykjavik alighting in the outer harbour there at 11.44 hrs.

THE AMERICAN EXPEDITION.

On Aug. 12 it was reported that the Danish ship *Gertrud Rask* which is carrying supplies for the American expedition and which has been caught in the ice outside Angmagssalik harbour had freed itself and preparations were made to resume the flight as soon as this ship could land her supplies.

The U.S.S. *Raleigh* on proceeding to Angmagssalik found that the harbour there was full of floating ice and that in any case the harbour would be too small to permit the alighting and taking off of the heavily-loaded Douglas seaplanes. This entails the finding of a new landing base and a further postponement of the flight from Iceland.

The American light cruisers *Richmond* and *Raleigh* which are employed on the flight across the North Atlantic are equipped with catapult gear; each have two Vought U.O.I. seaplanes on board and these have been employed in making reconnaissances over the ice-pack.

Fish Spotting from the Air.

At the request of the Fishery Board for Scotland the Air Ministry has detailed three F.5 flying boats to carry out experiments in locating fish from aircraft in Scottish waters.

Three machines left Felixstowe in the second week in July at 06.00 hours and arrived at Invergordon, which is to be the centre of operations, at 22.00 hours the same day, having landed at Port Edgar for refuelling from a lighter, a distance of about 450 miles as the crow flies. The machines and pilots belong to the Royal Air Force but observers have been provided by the Fishery Board. These observers have first of all to spot the shoals where herring are known to be and if this experiment succeeds they will try and locate further shoals.

H.M.S. *Exe* and the fishery cruiser *Minna* will co-operate in the experiments and both these vessels and the aircraft are fitted with wireless.

This action on the part of the Fishery Board for Scotland is quite independent of the Board of Fisheries in the Ministry

of Agriculture who carried out similar experiments in 1921 and 1922 the full report of which is shortly to be published.

In 1921 an attempt was made off the coast of Norfolk to spot the whereabouts of the herring shoals from seaplanes but owing to the fact that in these waters there are so many sand banks the water is quite thick and it was impossible to see anything at all from any height.

In the spring of 1922 further experiments were made with machines leaving Plymouth in connection with the machine fishing off Cornwall and down as far as the Scilly Isles. The experiment also from the point of the Fishery Board was a failure as the sea was too choppy on the surface for observers to get any definite results. The Board therefore continued their experiments as they came to the conclusion that the seas off these coasts were unsuitable for this method.

The French on the other hand reported that in 1921 they obtained singularly successful results off St. Malo and in the Bay of Biscay in locating the sardine shoals from the air.

The Fishery Board for Scotland are to be congratulated on pursuing their investigations in view of the fact that generations of fishermen have spotted shoals from Beachy Head regardless of sand or broken surface.

The Australian Air Estimates.

It is stated that of the special defence grant of £1,000,000 mentioned in the Australian Budget £232,000 will be allocated to the Royal Australian Air Force. This includes £40,000 for each of two additional units to be provided and £60,000 to be expended on the Laverton depot.

The Federal Government is granting £500 as prize money for the Light Aeroplane Competitions to be conducted by the Australian Aero Club at Sydney in October of this year. This is in addition to 500 already donated by Mr. Lebborn Hordern and £100 by the Australian Aero Club.

The Punch Bowl.

One is always safe in assuming beforehand that any show in which Mr. Archibald De Bear, late Captain R.A.F., is a hand will be well above the average of similar type productions. Mr. De Bear it will be remembered was one of the three one-time officers of the R.A.F. who founded the Co-optimists. It is satisfactory to learn that after a difference of opinion which led to Mr. De Bear severing his connection with the Co-optimists these differences have now been adjusted and he has rejoined that happy band and once more be responsible for much of their material in their new show on Sept. 2.

The Punch Bowl at the Duke of York's (N.B.—No connection with the Royal Wing-Commander R.A.F.) which is a revue in three parts is one of the few shows of its type which has reached the high level set by Co-optimists for wit and tuneful music. It has a brilliant cast which includes Alfred Lester Billie Leonard, Sonnie Hale, Norah Blaney, Gwen Farrar. Sonnie Hale is son of Robert and brother of Binnie of that name, and has quite the funniest face (well, he knows how to use) that one has ever seen.

Items of outstanding merit include a Shakespearean burlesque in which it is assumed that Shakespeare is brightening by skilful mixing of the characters—and so Romeo "gets off with" Ophelia, Orlando mixes with Juliet Hamlet (Alfred Lester) with Portia.

Another brilliant notion is the presentation of an original Punch and Judy Show as a ballet. This must be seen to be believed.

Sonnie Hale's singing of "Chili-bom-bom" is without equal anywhere and Billie Leonard's nonsense songs such as "Does the Spearmint lose its flavour on the bed-post at night" and "With his empty pockets full of five pound notes and half a-crown in gold" are pure gems of burlesque.

Norah Blaney and Gwen Farrar in songs such as "Shave it bobbed or shingled" and "It ain't gonna rain no more" are a joy for ever.

One feels that one is doing a real kindness to one's recreation in recommending them to go early to the Punch Bowl.—G

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THE ROYAL AIR FORCE.

Appointments.

Week ending Aug. 16.

GENERAL DUTIES BRANCH.—Air Commodore B. C. H. Drew, C.M.G., C.B.E., to H.Q.I.A., for duty as Chief Staff Officer, 27/8.
Wing Commander A. W. Tedder, to No. 2 F.T.S., Digby, pending taking over command, instead of to No. 10 Grp. H.Q. as previously notified, 3/9.

Squadron Leader W. G. Sitwell, D.S.C., to No. 1 Grp. H.Q., Kidbrooke, 1/9.

Flight Lieutenant J. F. Lawson, to R.A.F. Base, Calshot, 1/9.

Flying Officers P. H. Hunter, to R.A.F. Base, Calshot, on transfer to Home Estab., 7/7; P. J. Hayes, M.B.E., A.F.C., to Electrical and Wireless School, Flowerdown, 12/8; R. Mundy-Cox, L. E. Cutforth, to School of Army Co-operation, Old Sarum, 15/8; R. F. Overbury, to R.A.F. Base, Leuchars, 1/9; G. N. Carroll, H. E. E. Weblin, to R.A.F. Depot, 15/8.

Pilot Officers W. F. Langdon, A. H. D. Livock, G. D. Gibson, R. F. de R. Read, L. R. Shaw, R. E. Slacke, C. J. Southam, J. A. P. A. Yearsley, A. E. Paish, to School of Army Co-operation, Old Sarum, 15/8; E. C. Dearth, to No. 9 Sqdn., Manston, 15/8; D. J. F. McMillan, E. L. Batson-James, K. Macnochie, H. C. M. Shaw, to No. 2 F.T.S., Digby, 15/8; T. de L. Neill, to No. 58 Sqdn., Worthy Down, 15/8; C. G. M. Anderson, C. H. W. Boldero, D. C. Burnley, L. C. Lewis, C. H. P. Morgan, C. N. A. Mumby, L. H. Ross, S. M. Thomas, J. B. Townsend, J. H. Woodin, to R.A.F. Depot, 15/8.

MEDICAL BRANCH.—Squadron Leader (Medical) D'A. Power, M.C., to S. of T.T. (Men), Manston, 2/9. Flight Lieutenant (Medical) C. Y. Roberts, to Aircraft Park, India, 14/7. Flying Officer (Medical) E. D. Gray, M.B., M.A., to No. 56 Sqdn., Biggin Hill, 6/8.

The London Gazette.

Aug. 5.

GENERAL DUTIES BRANCH.—C. E. Galpin, is granted a S.S. Commn. as a Plt. Off. on probation, with effect from and with seny. of July 29. The follg. are granted temp. commns. as Flg. Offs. on attachment to R.A.F. for four years (July 14):—Capt. A. B. F. Alcock, D.S.C., R.M.; Lt. F. M. R. Stephenson, R.N.

The follg. Plt. Off. are promoted to rank of Flg. Off.:—N. H. F. Unwin (June 13); C. W. A. Scott (July 9).

Flg. Off. C. W. H. Moller is placed on half pay, Scale B (Aug. 1); Flg. Off. F. C. Baker is transferred to the Reserve, Class C (Aug. 1).

Flg. Off. W. E. P. Saunders (Lt., I.A., ret'd.) resigns his S.S. Commn. (Aug. 6). The S.S. Commn. of Plt. Off. on probation W. I. Lewis is terminated on cessation of duty (Aug. 6).

RESERVE OF AIR FORCE OFFICERS.—J. Woods is granted a commn. in Class A, General Duties Branch, as a Plt. Off. on probn. (July 22). Plt. Off. A. Lewis is transferred from Class A to Class C (July 25). The commn. of Flg. Off. on probation W. C. Harveyson is terminated on cessation of duty (Aug. 5).

Aug. 12.

GENERAL DUTIES BRANCH.—The follg. Lts., R.A., are granted temp. commns. as Flg. Offs. on seedg. for four years' duty with Royal Air Force:—R. A. King (July 29); C. C. Harris (Aug. 1).

The follg. Plt. Offs. are promoted to rank of Flg. Off.:—K. K. Brown (July 13); A. R. Woodyatt (Aug. 9).

The follg. resign their S.S. Commns. (Aug. 13):—Flg. Off. S. F. Coles, Plt. Off. C. D. S. I. McDevitte.

Flg. Off. J. E. V. Lindsey (Lt. A. and S. Highrs.) relinquishes his temp. commn. on return to Army (July 31); Plt. Off. G. Coffin is removed from Royal Air Force, His Majesty having no further use for his services (July 29).

STORES BRANCH.—Flg. Off. F. C. P. Roberts is placed on ret. list on acct. of ill-health (Aug. 13).

RESERVE OF AIR FORCE OFFICERS.—The follg. are granted commns. on probation in Class A General Duties Branch in ranks stated (Aug. 12):—Flg. Offs.—E. M. Bates, H. A. A. Borsse, J. C. Croft, C. R. Vaughan. Plt. Off.—S. G. Shand.

Aircraft Apprentices.

The Air Ministry announces:—In continuation of the policy of training Aircraft Apprentices in the skilled trades of the Royal Air Force, two examinations for the entry in January, 1925, of over 500 suitable boys who are physically fit and who will be between the ages of 15 and 16½ at the time of entry, will be held on Oct. 17 and Nov. 4 respectively.

The closing date for the receipt of completed forms of application for the first examination, which is an "Open" competition conducted by the Civil Service Commissioners, is Aug. 28, and for the second "Limited" competition, which is carried out by the Air Ministry in conjunction with the local education authorities of the country, the forms of nomination must be received in the Air Ministry by Oct. 7.

Candidates for the Civil Service "open" competition should apply for forms of application to The Secretary, Civil Service Commission, Burlington Gardens, London, W.1.

For the "Limited" competition, boys who are still at school should apply to their Headmasters with a view to securing a nomination from the education authority responsible for the School.

If they have left school they should apply to the Advisory Committee for Juvenile Employment in their area, while Boy Scouts can also apply to the authorities of the Boy Scout Association, and Territorial Cadets to the officers commanding their units.

Naval Engineers for the Fleet Air Arm.

Engineer-Commander George Villar, R.N., has been appointed to the Admiralty for duty with the Naval Air Section, which has not hitherto included an officer of the engineering branch. He was promoted in December, 1921, while serving as an engineer inspector under the Department of the Engineer-in-Chief, and continued in this capacity until a few weeks ago. During the war he served in the submarine flotillas at Harwick and elsewhere.

An Accident at Shotwick.

On Aug. 12 Plt. Off. H. C. M. Shaw and Plt. Off. C. Hillier were killed at Shotwick while making a practice flight on a Bristol Fighter.

It was stated that the machine was seen at about 2,000 feet with its nose down at an angle of about 45 degrees if the pilot intended to perform a manoeuvre which required a certain amount of speed. The machine then went into a vertical dive from which it never recovered.

Plt. Off. Hillier who was in the back seat either fell or jumped out from a height of about 150 feet and was found close to the machine while Plt. Off. Shaw was found in a mass of debris. Both were dead.

At the inquest a verdict of accidental death was returned.

An Incident in Transjordan.

Early in August a force of 2,500 Wahabis attacked the Beni Sakr tribe, one of the tribes loyal to the Emir Abdullah, ruler of Transjordan. They inflicted severe punishment on the Beni Sakr tribe, burning their villages and causing heavy casualties. The Beni Sakrs subsequently reformed and pursued the Wahabis.

Aeroplanes of the Royal Air Force took part in the fighting and are bombing the raiders.

The Emir Abdullah relies on British sympathy and assistance to enable him to maintain his position across the Jordan and this incident shows once again the efficiency of the Royal Air Force in enforcing law and order in the shortest possible time with the minimum trouble.

To follow the marauding tribesmen through the barren hills in this area would be beyond the capacity of British infantry and would impose a terrific strain at this season of the year on cavalry.

A Territorial Demonstration.

On three days of last week No. 16 Squadron, R.A.F., C. Sarum gave demonstrations of flying to the 48th (South Midland) Territorial Division which was encamped on Salisbury Plain. On Aug. 11 the 143rd Brigade and other troops of the Bulford Camp together with the Staff Officers now attached to the School of Army Co-operation, Old Sarum, were present, on Aug. 12 the 144th Brigade and other troops of the Fargo Camp were given their turn and on Aug. 14 the demonstration was repeated for the 145th Brigade at the Bustard Camp.

The programme was devised in order to keep the Territorial Army up-to-date in the latest developments of aircraft in operation with military forces.

The machines used in the Demonstration were the Fairchild Fawn, the Bristol Fighter and the Sopwith Snipe. A formation of Fawns flew over the various camps at 15,000 feet. It was explained that these machines were the standard machines for long-distance reconnaissance and day bombing.

Then followed a very convincing demonstration of army co-operation by a Bristol Fighter. The machine arrived over the troops at 3,000 feet and having ascertained the position of the firing line marked it on a map which he dropped at Brigade Headquarters in a few seconds. He then read a message laid out on the ground in code, took it down, and dropped it at Brigade Headquarters also in a few seconds. By another method of signalling the forward infantry asked for more ammunition. In a short time, a box, attached to a parachute, was dropped within a few yards of its destination. Message picking-up as seen at this year's Aerial Pageant brought the demonstration to a finish the machine then landing for further inspection by the troops.

A Sopwith Snipe from the Central Flying School gave a demonstration of upside down flying, aerobatics, etc., which included all those manoeuvres required in the ordinary course of air fighting.

The troops were then dismissed by units to enable them to examine the Bristol Fighter at close quarters.

PERSONAL NOTICES.

MARRIAGES.

BLANFORD—NATHAN.—On Aug. 16, at H.B.M. Consulate-General, Tientsin, North China, John Stephen Blanford, D.F.C. (The British General Reserve of Officers), of the Asiatic Petroleum Company, elder son of Mr. and Mrs. Ernest Blanford, of St. Hubert's Lodge, Watford, Herts, to Maude d'Avigdor, elder daughter of Mr. and Mrs. George Nathan, of Tientsin and London.

ILES—TILL.—On Aug. 6, at St. Ann's, Manchester, by the Rectory the Rev. Canon Dorrit, B.D., Leslie Millington Iles, Flt. Lt., R.A.F., to Beatrice May Till, only daughter of the late Thomas John Till and Mrs. E. Till, of Manchester.

DEATHS.

HILLIER.—On Aug. 12, at No. 5 F.T.S., Shotwick, as the result of an accident, Christopher Ernest Hillier, Plt. Off., R.A.F., of Blackheath, London. Aged 21 years.

SHAW.—On Aug. 12, at No. 5 F.T.S., Shotwick, as the result of an accident, Hampden Charlton Mason Shaw, Plt. Off., R.A.F., of Llandudno. Aged 22 years.



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CIVIL AVIATION STATISTICS, 1923-4.

The annual report on the Progress of Civil Aviation for the period April 1, 1923/Mar. 21, 1924, produced by the Directorate of Civil Aviation, The Air Ministry, which has just been issued, is a document which is well worthy of careful perusal by all who are interested in the progress of aviation.

Probably the most interesting section of this report, and certainly the most encouraging is that dealing with the statistics of Commercial Aviation. These statistics are largely in the form of tables which deal in a curiously sectionalised and inconsistent manner with various classes of flying, but it is possible to extract from them a good deal of information which is not explicitly given in the report.

TRANSPORT TOTALS.

In the period in question the total air transport flying both internal and Continental amounted to 1,004,000 miles in 5,012 flights, 15,013 passengers and 427 tons of goods being carried. The corresponding figures for the previous year were 778,000 miles, 4,000 flights, 11,460 passengers and 216 tons of goods. These figures are for flights by British machines alone.

Between Great Britain and the Continent British-owned aircraft made 2,714 flights and carried 11,648 passengers out of a total of 4,665 flights and 14,777 passengers carried by machines of all nationalities. British aircraft carried 79 per cent. of the Continental passenger traffic in 58 per cent. of the total number of flights.

By subtracting from the total British figures the figures for the Continental services it appears that in 1923/24 2,298 flights carrying 3,265 passengers were made, in addition to the purely cross-Channel services. For the previous year the figures were 1,035 flights and 1,394 passengers. The increase is 222 per cent. in number of flights and 260 per cent. in number of passengers. This enormous increase is to some considerable extent accounted for by the fact that each stage on such a flight as London-Rotterdam-Hanover-Berlin is counted as one flight.

It has to be recollected that the above figures refer only to flights which can properly be classed as transport. "Other flying" for hire or reward—mainly joy-riding—accounts for 22,842 flights covering 120,000 miles and for the carriage of 39,227 passengers.

Over and above the flights above catalogued a good deal of commercial flying for photographic purposes took place.

REGULARITY AND EFFICIENCY.

On the regular subsidised services 2,627 flights were completed within the subsidy time out of a total of 2,985 scheduled flights commenced. The efficiency on this basis is 88 per cent. 149 further flights were completed on the day of departure but outside the allotted subsidy time. The efficiency figure shows a slight drop from former figures achieved on the London-Paris service, but this drop is adequately explained by the great length of the London-Berlin and London-Cologne routes, and by the lack of such extended experience in the operation over these routes.

Of a total of 4,033 flights begun by subsidised firms during the year a total of 351—or 9 per cent.—were interrupted by involuntary landings. Of this total of 351, stress of weather accounted for 213, engine or installation failure for 91 of the forced landings. It is satisfactory to note the relatively small proportion of landings caused by engine trouble, but it would be interesting to have some details of the 47 involuntary stoppages due to "other causes."

INCONSISTENT TABULATION.

It will be noted that the efficiency of British subsidised services is computed on the basis of 2,985 flights commenced and of 2,776 completed in the same day, whereas statistics of forced landings by the subsidised firms are based on 4,033 flights begun. The total number of Continental flights is given as 2,714. The difference between 2,714 cross-Channel flights and the 2,776 flights completed in one day scarcely seems large enough to account for inland subsidised flights (London to Manchester) and flights to the Channel Islands which are not included in the Continental tables.

The difference between 2,985 flights begun to schedule and 4,033 flights begun by subsidised firms which are considered in the forced landing tables would seem to indicate that the subsidised companies made 1,048 unsubsidised trips the great majority of them of a purely inland character. Inquiry at the Air Ministry indicates that for this table every stage on a Continental route as for instance London-Rotterdam, Rotterdam-Hanover, Hanover-Berlin, is counted as one flight, which puts another complexion on the matter.

A table giving details of all British transport flying carried out by each concern which would permit one to harmonise the curiously divergent figures given in the separate tables would add greatly to the utility of the present report.

ACCIDENTS.

Apart from trivial occurrences which required no investigation there were 26 accidents to British civil aircraft

during the year. Of these five only occurred on established air routes. Unfortunately the most serious accident of the whole was one of these five and resulted in the death of three passengers and of two pilots.

This accident, and one other which injured nobody are attributed in the report to errors of judgment on the part of the same pilot, and no other accident due to this cause occurred on an established line. One of the remainder was caused by a leak developing in a petrol tank, another forced landing in a fog on soft sand, and the third, occurred to a flying boat, was probably due to the pilot judging his height above the water in mist and a dead end, but the cause cannot be certainly stated. The one accident to an air-line machine is the first involving the loss of passenger life which has occurred in Britain since 1902.

No passenger was injured to any serious extent in the form of flying for hire during 1923/24. Three members of the crew of air transport machines were injured, and a member of the crew of a machine plying for hire was injured in this period.

Nine accidents occurred on short passenger flights—which is a very small total for the 22,000 odd joy-ride flights recorded. None of these resulted in a fatality and only in injury to a member of the crew.

Five fatal accidents occurred in the course of other flying. One occurred during constructor's trials of a new machine during a race, and one during a school flight. Another was caused by aerodynamic defects in an unlicensed experimental machine, and the last was caused by engine failure over the sea. The pilot in this case was drowned in an attempt to swim ashore.

CAUSES OF ACCIDENTS.

Of the whole 26 accidents, thirteen—or one-half—were caused by errors of judgment on the part of the crew, by defects of the aeroplane itself, eight by engine failure and one by weather conditions. Of the remaining two was the case of the flying boat already mentioned and the other which was not serious was caused by hitting a hedge in an attempt to get out of a small field after a forced landing.

It speaks extremely well for the qualities of British pilots generally that only thirteen accidents should be attributed to errors of judgment and only eight to engine failure. According to the details given only five of the accidents were definitely the result of a stall, but there can be no doubt that the fear of a stall is a frequent cause of accidents in landing, and that a complete solution of the problem of control at stalling speed would greatly reduce the total number of accidents resulting from forced landings, however caused.

That only eight accidents should have resulted from engine failure, when on the regular air line alone over 90 landings were forced by this cause alone indicates that important engine reliability undoubtedly is, the control problem is very much more important from the point of view of safety. There were only two accidents attributable to defective aircraft, speaks very highly indeed for the standard of British design and construction—particularly as one of these defects developed in a machine designed and built some seven years or so prior to the accident.

ACCIDENTS TO FOREIGN MACHINES.

In the same period six accidents to machines belonging to foreign air lines occurred in Britain, and one to a French monoplane at the Lympne light aeroplane competition. This resulted in two deaths, one of a passenger, and in injury to seven passengers and two members of the crews.

An interesting light on the progress of organised air transport during the past few years is provided by an analysis of the traffic figures on the Continental routes. In 1923 British machines carried an average of 4.3 passengers per trip as against 3.6 passengers per trip in 1922/23. For 1924 French machines to and from Britain averaged 2.1 passengers per trip, and Dutch machines 1.8 passengers per trip.

Taking the whole of British transport flying, internal as well as Continental, the number of passengers per trip averages very nearly 3—or considerably more than the French average on the particularly favourable London-Paris route. In addition an average load of 191 lbs. of goods per trip was carried on the British machines engaged in air transport. This is a highly satisfactory figure and indicates that excellent progress is being made towards securing reasonable full loads for all machines. No data are available from which the ratio of load actually carried to total load capacity can be computed, but it is evidently something close to, if not in excess of, 50 per cent.—which is an excellent result considering the very poor traffic conditions which invariably accompany the winter months.

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FOREIGN AND COLONIAL FIGURES.

The report includes statistics as to civil flying in the British Dominions and Colonies and a general account of the state of affairs in foreign countries. Although the data given in these cases is considerably less complete than is the case for Great Britain yet it is sufficient to give a fairly clear idea of the relative state of aviation in the world at large.

The result of a comparison between the activities of Great Britain and France is distinctly encouraging. The French vote for Civil Aviation and Allied Services in 1923 amounted to 138,460,000 francs (about £1,600,000 at 80 francs to the £) and the total sum voted in subsidies in 1923 to 46,922,000 francs (about £575,000). The British vote for Civil Aviation in 1923/4 was £305,000 and the sum paid in subsidies—which is not anywhere clearly stated—was of the order of £125,000 for the same year.

For this greatly increased outlay the French transport service flew 2,115,000 miles, against the British 1,004,000 miles, but carried only 7,811 passengers against the British total of 15,013. On the other hand the French services carried 778 tons of mail and goods against the British total of 427 tons. The average stage length of the French services is 250 miles against the British average of 198, but the total British passenger miles must greatly exceed the French total.

French passengers per trip average 0.79 against the total English figure of 3 per trip, and French goods average 176 lbs. per trip against the British average of 191 lbs. per trip. Obviously British air traffic is in a very much healthier state than that of France and the cost to the public Exchequer of inducing air services is very much higher in France than it is here. The cost to the French public in subsidies alone amounts to 22.2 francs or about 5s. 6d. per mile at the present rate of exchange, whereas the whole vote for Civil Aviation in this country amounts only to about the same

sum (5s. 11d. to be exact). The total of the Civil Aviation vote in France amounts to three times as much per flown—which means that the cost to the State per passenger or ton-mile in France is something like five to six times the corresponding cost in this country.

It has, however, to be remembered that the French in this matter has as its main object the building up of a reserve. During 1923 no less than 800 reserve pilots passed through a course of training.

The number of R.A.F. Reserve pilots who completed training up to the end of the financial year 1923/24 was 1,000 and if the results produced in the way of trained pilots is regarded as an index to the state of Civil Aviation in France undoubtedly France may feel that she is obtaining a value for money than are we. £2,000 per annum per pilot for reserve training however seems a high price to pay.

The German traffic organisations in 1923 made 1,378 flights covering 448,700 miles and carrying 8,507 passengers. These figures include the traffic carried by D.L.G. machines on the Berlin route. No data as to accidents given nor is it possible to discover the State expenditure on Aviation.

The Königsberg-Moscow service which is operated by D.L.G. machines bearing Russian registration, completed 99 per cent. of 155 scheduled flights, carried 352 passengers, 24 tons of mail and goods—or 93.2 per cent. of the effective capacity. One accident to a machine and no accidents to passengers occurred. This must be about the most economical factory air line at present in operation in regard to cost of loading.

The only other air service of any magnitude concerning which statistics are given is the United States Air Mail service which in 1923 flew 1,870,422 miles, and carried 65,295,920 postal packets.

OF THE TRAINING OF ENGINEERS.

In a note recently published in this paper concerning the entries for the forthcoming Rhön gliding competition it was remarked that the very large number of machines which is produced annually for this contest was evidence of the fact that Germany is providing herself with a very considerable number of well-trained aeronautical engineers while this country was not. There is of course nothing particularly new about this fact which is more or less a normal sequence to the entirely different attitudes of Germany and of Great Britain towards the subject of technical education.

During the past few years there has been in this country much verbal insistence on the importance to British industry generally of greater attention to scientific research work, and in this connection the example of Germany has been held up as one which should be followed. It may very seriously be doubted whether any but a very small proportion of those who in this country have rendered lip service to the cause of scientific research have the faintest idea of the real nature of the German superiority in the matter of scientific research as a means to the development of industry.

ORIGINATION AND DEVELOPMENT.

In scientific work of the more fundamental nature Great Britain up to the present has no cause to fear comparison with any other nation in the World. It is a well-known fact that Germany owes a very great part of her industrial development of the past 50 years to the adoption and practical development in detail of inventions, discoveries, and processes originated by foreign, and very largely, by British, scientists and engineers. This is by no means meant in disparagement of Germany—which has also been responsible for no mean amount of origination of scientific enterprise in that same interval, but is purely by way of indicating where her real superiority in technical work lies.

Now this particular superiority in the practical application of science to the improvement of industrial processes is, from the national point of view, vastly more important than the possession of a few brilliant origination minds, and it is very largely a matter of the training of engineers and other professional workers in industry.

THE "PRACTICAL" BRITISH ENGINEER.

In this country it is still the exception rather than the rule to discover a practical engineer who possesses any extensive or profound knowledge of the physical and chemical sciences on which engineering is founded. The majority of those who study these fundamental bases of engineering even to a sufficient extent to qualify for the degree of B.Sc., at any of our Universities, drift into the teaching profession—or even into the Church. A certain number of them are discoverable at such establishments as the N.P.L. and even the R.A.E. houses its share of them, a few drift into the experimental (research) departments of those commercial enterprises as have such appendages, but a very small proportion indeed of those so qualified are to be found occupying re-

sponsible positions in commercial engineering undertakings.

The reason for this state of affairs is in practice a simple and a very ridiculous one. It is impossible to give a youth a sound training in the scientific basis of engineering in less than about three years of fairly steady work. The youth is not ready to start his practical training in workshops until he is about 20. If he succeeds in getting taken on by an engineering firm at that age in this country his possession of a thorough technical training will mean a general count for anything. The great majority of the managers of engineering establishments in this country themselves possessed of very little knowledge of science do not in fact know enough about science to use the scientific knowledge of their subordinates. As a result the technically trained pupil is usually given no greater opportunity of advancement than is the youth of 16 or 17 who comes to the shop straight from school. He is in fact often less of opportunity so that his three years of technical training is in practice—during the earlier part of his career—least—just three years of lost seniority.

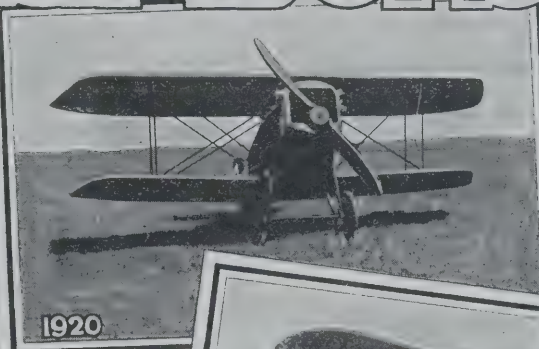
AN EXPENSIVE LUXURY.

A really sound technical training in this country is a somewhat expensive luxury, and in a very large number of cases parents who have afforded their sons such a training find it an impossible burden to maintain them for another year or two of practical training, particularly when they see their boys devoid of any such advantages competing with their own sons without any signs of being handicapped thereby. Thus a very large number of those who have been given a proper grounding in science and who might become extremely useful engineers given the essential practical training, drift off into work which enables them to earn something at once instead of having to wait another two or three years and become properly trained engineers.

In Germany and in fact in the majority of civilised countries other than Britain it is regarded as essential that a young engineer—as distinguished from the artisan mechanic—should possess a degree of technical scientific training of a standard at least comparable to that equivalent to a B.Sc. degree in this country, and the youth who essayed to become an engineer in the absence of such a course of technical training would find that he was seriously handicapped thereby.

The result is that, whereas in this country the person available for research and experimental work which is bearing on industrial processes is limited in numbers largely confined to those who are not practising engineers in Germany practically every young engineer has the scientific knowledge which renders him fit to carry out work under purely general instructions from his employer. And being an engineer he is able to conduct his experimental work with a knowledge of the practical possibilities of repeating his laboratory work on a practical commercial

The Aerial Derby



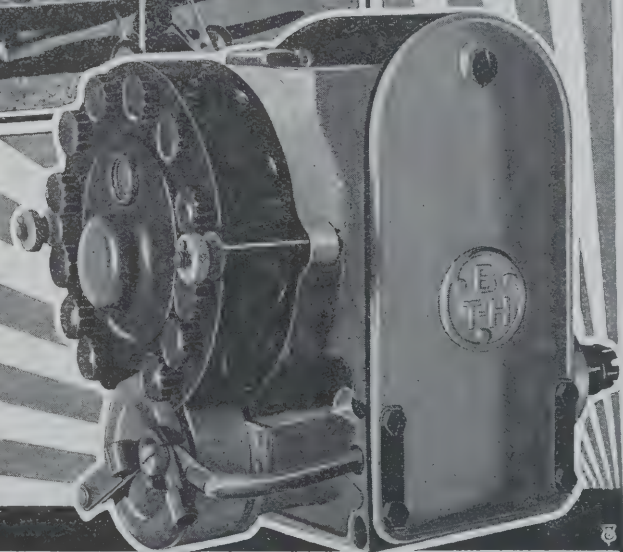
Every Aerial Derby

has been won by a machine fitted with
B.T.H. Magneto.

This record of consistent performance, over a period of five years, illustrates the perfect reliability of these magnetos under the most exacting conditions.

It is of interest to note also that B.T.H. Magneto were employed by the machines securing second place in each of these races—an indication of the uniform excellence of the design, workmanship and materials of these magnetos.

*Illustrations by courtesy of
"The Aeroplane" and "Flight."*



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Alma Street



Coventry

WHERE TECHNICAL TRAINING TELLS.

The importance of this state of affairs in practice is exceedingly great, and may be illustrated by the well-known case of the Aniline dye industry. As is well known the basic research work which established the possibility of producing anilin compounds of commercial value from coal-tar was conducted in this country by Perkins over 50 years ago. As a result of Perkins' work it has become possible to produce from the crude by-products of the gas retort complicated chemical compounds of innumerable varieties, and to produce many of those compounds by many alternative chemical and physical processes.

The practical development of the vast group of chemical industries which use coal-tar as their basic material has been developed from Perkins' original work, not so much by brilliant additional discoveries, as by innumerable trials and experiments leading to the production of new compounds, of the examination of those compounds to discover their properties and their possible uses, and to develop laboratory methods of producing the useful compounds on a practicable commercial scale.

A single instance which is well known relates to the production of a specific for an exceedingly widespread disease. The original discovery leading to its production was that a certain class of organic compound containing arsenic was fatal to the micro-organism causing the disease. The practical problem presented was that of discovering one such compound in which the lethal qualities of the class in respect of the micro-organism was retained without similar qualities in regard to the patient whom it was sought to cure. Success was only attained after more than 600 separate compounds had been prepared. Each of these compounds had not merely to be prepared, but to be tested for its physiological effects on both the micro-organism and the patient.

It has been estimated that in this particular case there are about 10,000 different compounds which might possess the desired qualities and that among the 10,000 there are pretty certainly some that would be superior to the one now in use for this particular purpose. It is fairly obvious that in cases of this sort the factor which determines the rate of progress of practical industrial development of scientific discovery is one of an adequate supply of the special class of labour required to carry on experiment on the vast scale necessary.

What is true of organic chemistry is true, if perhaps in a lesser degree, of the application of scientific work to engineering—including aeronautical engineering.

In this country our unhappily haphazard method of producing engineers provides us with large supplies of very capable practical technicians, but of a somewhat limited range of professional outlook and with the minimum of scientific knowledge. It also produces a certain supply of quite competent laboratory workers, mostly devoid of any real knowledge of the practical aspects of commercial engineering. As a result much of our laboratory work is carried out without any reference to the conditions of practical development and is handed over to an engineer who may not in the least understand the inwardness of the experimental work to see what can be made of it. The result is that the engineer distrusts experimental results and the laboratory man thinks little of the engineer's intelligence.

Two independent individuals are needed to do the work that could often be accomplished by one of wider experience, and, what is possibly more important still, the majority of British engineers are totally incapable of carrying out with any

efficiency experimental work designed to solve new problems with which they are confronted.

In a recent correspondence in *The Times* the value of "technical work" in experimental research in rapidly solving practical problems, the scientific basis for which had already been established, was pointed out—the example of the method specific above mentioned being used for an example. It is fairly obvious that there are many problems in aeronautical engineering which one cannot reasonably expect to be solved except as the result of a very large number of individual experiments. Provided that a solution is sufficiently urgent required, the obvious method of producing the solution rapidly is to turn numerous competent men into the job of making simultaneous experiments on an ordered plan.

In Britain we have relatively few men with the scientific knowledge to run such experimental work, except under detailed supervision. In Germany a large proportion of aeronautical engineers in the country could be employed in work of this nature under purely general supervision and instruction. At the present moment the German aircraft industry is not in a position to employ any large proportion of these potential aircraft engineers, but the glider movement through the agency of University Aeronautical Association and the like—is providing them with opportunities for carrying on experimental design and experimental flying.

In this country we have no such reserve of technically trained men and in the near future therefore it is not likely that the Aircraft Industry of Germany will be able to take a position relative to the British Industry not unlike that which it held—and still holds—in the dyestuffs industry.

The French Single-Seat Fighter Competition

A competition for single-seat fighter aeroplanes, the winner of which is guaranteed a production order for 100, the French *Aéronautique Militaire*, has begun at Villacoublay.

As the competition is being held under the auspices of the Section Technique no particulars of either the competition or the competitors are available. There appear to be no fixed dates for the competition. Further tests are to be held at Dagny and Cazaux.

The following firms are competing: Nieuport-Delage, Blériot Aéronautique, Gourdou-Leseurre, Dewoitine, Wibault and Hanriot.

Nieuport-Delage have entered in single-seater monoplane fitted with the new 450 h.p. Hispano-Suiza engine, Dewoitine two monoplanes and a sesquiplane fitted with the 400 h.p. Gnome-Rhône Jupiter, the new 450 h.p. three-row Lorraine-Dietrich engine and the 450 h.p. Hispano-Suiza engine respectively, Hanriot a biplane with the new 550 h.p. Salmson engine, Blériot three biplanes with the 450 h.p. Lorraine-Dietrich three-row engine, the Gnome-Rhône Jupiter and the 300 h.p. Hispano-Suiza respectively, Gourdou-Leseurre a Jupiter-engined monoplane, and Wibault a Jupiter-engined monoplane.

The Udet Colibri.

By courtesy of Douglas Motors Ltd., THE AEROPLANE is able to supplement the recent mention of the Douglas-engined Udet light aeroplane by the two photographs here reproduced.

Some considerable time ago the Wissenschaftliche Gesellschaft für Luftfahrt offered a prize of 2,000 marks for the first German light aeroplane to fly for over two hours. The Colibri was completed on a Friday, and on the Sunday following made a flight of 2 hours 2 mins., thus securing the prize.

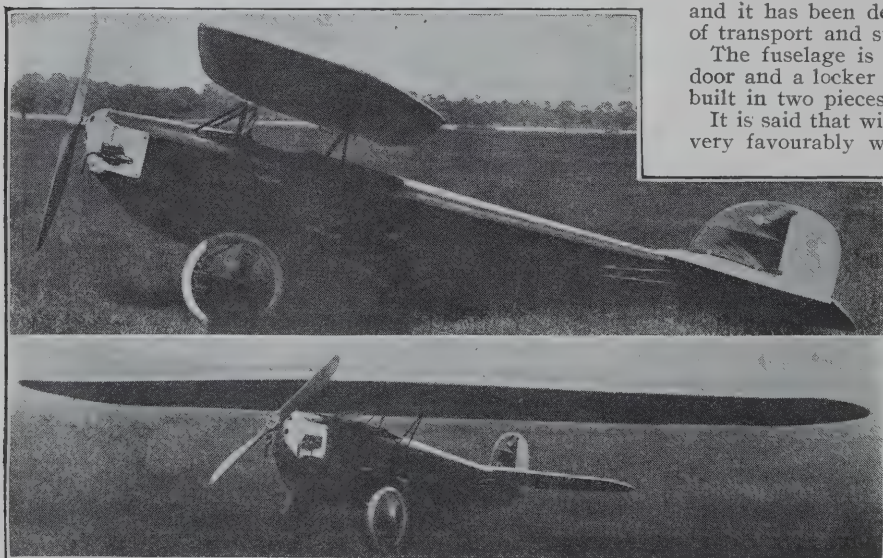
The machine is said to be extremely easy and safe to fly, and it has been designed for simplicity of upkeep, and ease of transport and stowage.

The fuselage is three-ply covered, and has a side entrance door and a locker for small articles of luggage. The wing is built in two pieces and is removed in two minutes.

It is said that with the engine stopped the Colibri compares very favourably with the majority of engineless gliders.

SPECIFICATION.

Span	10.0 m. (32 ft. 10 in.)
Length	5.47 m. (18 ft. 1 in.)
Height	1.82 m. (6 ft. 0 in.)
Wing area	12.5 sq. m. (135 sq. ft.)
Weight empty	150 kg. (330 lb.)
Weight loaded	250 kg. (550 lb.)
Wing loading	20 kg./sq. m. (41 lbs./sq. ft.)
Engine	500 c.c. Dugesi
Fuel capacity	4 hours at full power
Speed range	50 to 120 km/h. (31 to 75 m.p.h.)
Climb to 1,000 m. (3,280 ft.)	8 min.





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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR WEEK ENDING AUG. 10.

Trips per Day—Monday, 25; Tuesday, 22; Wednesday, 35; Thursday, 25; Friday, 31; Saturday, 27; Sunday, 16.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 108, passengers 560, freight 30 tons.

AIR UNION:

Paris—London: Machines 50, passengers 295; freight 8 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 15, passengers 58.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 8, passengers 17.

Total number of trips by British machines: 108, carrying 560 pas.

Foreign machines: 73, carrying 370 passengers.

Comparative Figures:

For week ending Aug. 10:

Machines, 181; Passengers, 930; Crews, 225; Total personnel, 1,155.

Corresponding week, 1923:

Machines, 146; Passengers, 682; Crews, 233; Total personnel, 915.

Corresponding week, 1922:

Machines, 209; Passengers, 734; Crews, 342; Total personnel, 1,076.

Corresponding week, 1921:

Machines, 155; Passengers, 462; Crews, 144; Total personnel, 666.

Corresponding week, 1920:

Machines, 115; Passengers, 240; Crews, 144; Total personnel, 384.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day—Monday, 24; Tuesday, 32; Wednesday, 27; Thursday, 29; Friday, 32; Saturday, 12; Sunday, 8.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 122, passengers 628, freight 30 tons.

AIR UNION:

Paris—London: Machines 40, passengers 189, freight 7 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 17, passengers 74.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 8, passengers 14.

DE HAVILLAND HIRE:

Machines 1, passengers 1.

Total number of trips by British machines: 123, carrying 629 pas.

Foreign machines, 61, carrying 272 passengers.

Comparative Figures:

For week ending Aug. 17:

Machines, 184; Passengers, 901; Crews, 217; Total personnel, 1,118.

Corresponding week, 1923:

Machines, 137; Passengers, 667; Crews, 199; Total personnel, 866.

Corresponding week, 1922:

Machines, 200; Passengers, 699; Crews, 300; Total personnel, 999.

Corresponding week, 1921:

Machines, 115; Passengers, 482; Crews, 164; Total personnel, 646.

Corresponding week, 1920:

Machines, 112; Passengers, 220; Crews, 144; Total personnel, 364.

Croydon Notes.

Business is looking up as regards Imperial Airways Ltd. Passengers and goods are many and Mr. Eskell, the energetic traffic manager runs about faster and faster in his efforts to cope with everything at once. One believes that it was originally Mr. Eskell who found the goods traffic to Cologne and it is doubtless due to him that the freight has increased to such an extent that it is now recorded in tons instead of in pounds.

Since the start of operations three more pilots have been taken on. Mr. Armstrong, late of A. T. and T. was the first and then Lt.-Col. Minchin joined and now Mr. Stewart has made his appearance flying a W8.b.

Mr. MacIntosh on Monday of this week flew to Berlin on a D.H.50 (Siddleley Puma) in 4 hours 39 minutes.

On Sunday the Crown Prince of Roumania arrived on Fokker H-NABQ piloted by Mr. Klunder and accompanied by two of his staff. He had been to Amsterdam on business for his country for whom he is Inspector-General of Aeronautics.

It seems that on the K.L.M. service they adopt a species of scale of nationalities with regard to the passengers. That is to say that apparently a Fokker F.III can only take four Dutchmen whereas about eight Japanese seem to be equal in weight to the four Dutchmen, and so would come within the allowed weight.

The Surrey Flying Services has started a department for aerial photography on a big scale. Mr. Mackenzie is the photographer and his results up-to-date are astonishingly good. Most of the West of England has been covered already and they are proceeding at the rate of about 400 photographs per flight to cover the remainder of England. One has seldom seen any photographs taken from the air in which the detail is so good.

The new Trust House has now been opened completely and Mr. Lloyd showed one round on Saturday with very justifiable pride. Mr. Lloyd has been working hard during the past two years to get a hotel worthy of its position as the first British air station hotel. It will be remembered that the dining room was opened last year.

The entrance to the new premises is on the south side of

the aerodrome Broadway and on going through the one comes into a small palm court. The dining room hold several hundred people comfortably and as the cooking is now done by gas service will be very much quicker. There is a very large billiard room but by far the most interesting room is the lounge the walls of which are covered with water colours by Mr. Charles Dickson of famous planes and some very remarkable caricatures of the persons at the aerodrome. The outstanding ones depict Mr. H. Courtney "steer-wrestling" an aeroplane and Mr. Hinch Mr. Muir, Mr. Leverton and Mr. Lloyd himself all in characteristic poses.

The Light Aeroplane Competition.

In addition to the thirteen entries for the light aeroplane competition recorded in last week's competition, two have been received by the Royal Aero Club from the Hawker Engineering Co. Ltd. It is understood that Sq. Longton and Mr. F. P. Raynham will be the pilots. Several more entries are expected.

In many cases where a firm enters more than one machine it is possibly the same machine with different wings or engines which under the rules have to be entered as a separate machine.

Mr. Maurice Piercey, who will fly the Beardmore machine is about to go to Scotland to test the machine which he last got its Bristol Cherub engine delivered.

Opportunities for Tuning.

Major-General and/or Air Vice-Marshal Sir S. Branker, Director of Civil Aviation, has arranged with the British Broadcasting Company to have broadcast four programmes on Civil Aviation. He gave the first of these last week. The speaker was introduced by Major Corbett Smith, late R.A.F. who is Art Editor (or words to that effect) of the B.B.C.

Sir Sefton's speeches are usually entertaining as well as educative, but one was shocked to find that on this occasion he had misjudged his audience and in trying to impart information in its most solid form had allowed himself to come astonishingly dull.

He would do well to bear in mind that an audience of wireless talk is not at the speaker's mercy as it is at a bar or similar function. One fears that in a million homes the cry of "Switch him off" must have been fairly well chorous at the end of five minutes.

Unless the remaining speeches are made more interesting than the first one fears that their utility will be closely related to that of the daily tuning note. And Sir Sefton has a fine chance of airing his views, bearing in mind that there is a natural connection between airing and breeziness.

Light Aeroplane Flying Clubs.

The Air Ministry announces:—

The Air Council have been greatly impressed with the aeromane possibilities opened up by the development of the light aeroplane, which this country leads the way, and in addition to offering facilities for a competition, open to two-seater light aeroplanes, which will be held at Lympne next month, they are anxious that full advantage should be secured to the country from the progress which is being made with this type of aircraft.

The Air Council have reached the conclusion that these advantages can best be secured by encouraging, with the help of County and Municipal authorities, the formation of light aeroplane clubs throughout the country, and they are now prepared to assist financially a period of two years, the establishment of ten Light Aeroplane Flying Clubs whose constitution is approved.

In the first instance it is proposed to endeavour to secure the formation of such clubs in the leading commercial centres of the country and an Air Ministry representative will shortly visit these centres with a view to discussing the details of the scheme which has been prepared with the local authorities and hearing their views on the subject.

Under the scheme the Air Ministry proposes to make to each club an initial grant, suitably secured, for the provision of approved light aeroplanes selected by the club, and an annual grant for two years towards the expenses of maintenance and the purchase of material and spares.

The club will be required to put up financial or other contribution, to, at least, an equivalent amount, and to insure against loss or damage equipment provided out of funds supplied by the Air Ministry.

The club will be required to make its own financial arrangements for suitable aerodrome facilities and the necessary shed accommodation, and to employ one or more qualified Air Pilot Instructors or Ground Engineers.

The club will be responsible for the management of the aircraft, and for the maintenance of the aircraft, but periodic inspections will be undertaken by the Air Ministry.

The Air Ministry will also make a grant to each club in proportion to the number of members who qualifies for the issue of a private pilot's licence on club aircraft.

The possibility of putting this scheme into operation at some future date next year depends on the measure of success attained by the aircraft entered for the Government competition for two-seater aeroplanes referred to above.

So far as the London area is concerned the Royal Aero Club has undertaken to submit proposals; any inquiries, therefore, concerning the Light Aeroplane Club for the London district should be addressed to the Secretary, the Royal Aero Club, 3, Clifford Street, W.1.

THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. C. Grey

Vol. XXVII. No. 9.

SIXPENCE WEEKLY.

Registered at the G.P.O.
as a Newspaper.

A PUBLIC SCHOOL.



IN DE HAVIL-LAND:—A corner of the Aerodrome of the De Havilland Aircraft Company, Ltd. at Stag Lane. This shows the sheds of the flying school which was opened last year for the benefit of the public and is the biggest public school of flying in the country. Three D.H.9s and a Renault Avro can be seen on the Aerodrome.

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SEE PAGE 207 FOR PALMER LANDING WHEELS AND TYRES.

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- AND -
SEAPLANES

The AVRO BISON

THE illustration shows the AVRO BISON, a Fleet Gunner's Spotter, specially built for the British Air Ministry. This machine is equipped for taking off and alighting on a ship's deck.

- The AVRO BISON is only one example from the wide range of new and successful designs produced by A. V. Roe & Co., Ltd. Other examples will be shown from time to time in AVRO advertisements in this journal.

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ON FIVE YEARS OF CIVIL FLYING.

On Aug. 24, 1919 Civil Aviation began legally after the 1914-18. That is to say regular air-line work was begun at an enterprising but ill-fated firm Air Transport and Travel, which was organised by Mr. Holt Thomas, with General Coker and General Festing as his lieutenants. It was no more of theirs that the firm failed. Their trouble was merely that they were five years too early, and that the financial world behind the firm did not see it through its critical period.

The five years which have passed since then Civil Aviation has seen many changes, and to-day it is in a fair way towards success. The essence of the five years has been skillfully compressed into tabloid form in the *Daily Mail* of Aug. 1. One has often been compelled to differ from the *Mail* but one has even dared on occasion to ridicule its ideas on aviation. But in this matter one feels that the writer, who believes to be that pioneer of aeronautical journalism Harry Harper, has put the case so well that he deserves to be quoted in full. He says:—

Then, yesterday evening, the last air express came to rest British Airways completed their fifth year.

In 1919, when aeroplanes began to fly between London and Paris, there were three questions civil aviation had to answer. Can 1000-an-hour air transport be made reliable? Can it be made safe? Can it pay?

As to reliability. Our winged expresses have now flown more than 100,000 miles. During the summer they have attained a reliability of 91 per cent. Even with winter fogs, the all-the-year-round reliability is as high, already, as 88 per cent. This, remembering that aviation is being improved constantly, disposes of the contention that aeroplane transport cannot be reliable.

As to safety, British 'planes have carried nearly 50,000 passengers, and only six have lost their lives. Which is an answer to the question "Can flying be made safe?" It can.

There is still the question, "Will air transport pay?" The answer is that for the first time, with Imperial Airways (our national airline) forming plans for 10 years ahead, and with 'planes forthcoming which will carry 20 per cent. more paying load, for any given cost, than do existing craft, aerial transport has a chance to make progress. There is every prospect now that the speed and safety of flying will be combined with commercial success.

Personally one would go further than does the *Mail* and would say that success can be assured if only those who are engaged with the development of Civil Aviation, whether as officials at the Air Ministry or as Directors of Imperial Airways Ltd., which has the monopoly of the Government subsidy, will follow the policy of pure common sense.

Can Air Transport at 100 miles an hour or more can be made profitable if only proper observation stations be established along each route, like signal-boxes on a railway, to communicate with each pilot by wireless, to tell him whether he is on his right course, and to tell him what the weather is ahead of him and whether he had better fly high or keep low over land.

Can Air Transport can be made safe if only the proprietors of the air lines will scrap their present flying stock and will use new types such as can be produced immediately. Such machines will fly at well over 100 m.p.h. but they will alight where at approximately nought m.p.h. They cannot stall or spin out of control and even if a control should break down can still be brought down almost like a parachute, so that under the worst conditions, short of alighting on a house then falling off it, they are unlikely to kill their passengers. In fact they are safer than the average motor-car.

Can Air Transport will be made to pay when the air lines are equipped with aeroplanes which only need 10 h.p. per engine instead of about 50 h.p. per head as at present. That such machines are possible is proved by our experience with light aeroplanes at Lympne and elsewhere. It is not the cost of the aeroplane which kills Civil Aviation as a commercial proposition to-day, it is the price of the engine and the cost of feeding it with fuel and of overhauling it. Simple, cheap engines using cheap fuel and little of it, and aeroplanes which are so designed as to be efficient will overcome financial difficulty.

the Directors of Imperial Airways Ltd. tackle these three problems energetically during the next twelve months they

will not only pay their way and justify the granting to them of a monopoly of the State Subsidy but they will deserve to go down in History as the Makers of Civil Aviation.—C. G. G.

ON OFFICIALS AT RACE MEETINGS.

The Royal Aero Club Committee would do well in future to consider carefully those whom they appoint as officials at their various races and competitions. Before last year officials were largely drawn from the Trade itself but at the Lympne week last year the Club decided to rule it out of order for anyone actively connected with the Trade to hold any official post. They even ruled that members of the staff of this paper were too actively concerned with the Trade to be free from ulterior motives. With which decision one heartily concurs.

Therefore it was all the more astonishing to find that at the King's Cup Race there were appointed certain officials who had a distinct interest in the competing machines.

One wishes to say here that one imputes nothing against these officials, and one's personal knowledge is that their honour is beyond doubt, but the Club, by appointing them as officials, placed them in a position where they have come in for much criticism.

It is of course ridiculous to suggest that such a keen worker as the managing director of a famous selling concern should be biased because his firm supplied the engine of the winning machine, or that this fact should bias him in making an awkward decision.

Then there is the case of the Club appointing as a handicapper a gentleman who is consulting engineer to an aircraft concern and who, one is told, made all the arrangements for the entry of one of the competing machines which on its performance as far as it went would have won the race easily.

The Club's action in appointing an obviously interested party to such a responsible post is very unfair indeed to this official, as it has laid him open to criticism on all sides, especially after the things said last year at Lympne when the firm in which he is a prominent partner were consultants to a big petrol firm and were also employed in a very important official capacity.

The Air Council as the donor of the prize, the competitors themselves and the S.B.A.C. would do well to see that for the competitions at Lympne nobody who supplies any parts of the aeroplanes and engines, or petrol or oil or dope, etc., or who acts as consulting engineer, press agent or is in any way connected with the Trade in such a way that he may be biased one way or the other by his personal interests should hold any official position whatever.

One asks the Committee of the Royal Aero Club to make a public declaration that no such person however remotely interested financially shall be employed in such a capacity.—G. D.

ON SECRET PRIZES.

One suggests to the Royal Aero Club that it should take steps to put down the objectionable practice on the part of interested firms of offering secret prizes to pilots and others for obtaining success by the use of that firm's products.

For instance the entirely imaginary firm of Bonko's Chewing Gum Ltd. may come to a pilot before a race and say in his ear "If you win the competition by running on Bonko's Chewing Gum you will receive £1,000 and you will receive £500 if you are second."

The Club should make it quite clear that if such an occurrence is reported to them the use of Bonko at future meetings will be prohibited and the pilot, entrant and all connected with them will be disqualified and may be suspended from participation in subsequent events. Incidentally one is under the impression that such a practice comes under the Secret Commissions Act.

If Bonko's Chewing Gum desire to give away money or have to bribe competitors before they can get their gum chewed there is no reason why they should not lodge with the Club a prize for the competitor who wins the competition and also puts up the best performance using Bonko's Chewing Gum. Then people will know where they are. The present practice is distinctly under-hand and the Club must spare no effort to stamp it out if data of any value are to result from competitions.—G. D.

ON THE RULES OF THE AIR WAR.—I.

One of the minor humours of life since the outbreak of peace after the Armistice on Nov. 11, 1918, has been the International Commission for the Revision of the Rules of Warfare, which sat at the Hague from Dec. 22, 1922, to Feb. 17, 1923. The General Report of the Commission of Jurists who sat to consider and report on the revision of these rules, together with the covering dispatch from Sir Rennell Rodd, the first British Delegate to the International Commission, have just been published as a White Paper, officially known as Command Paper 2201.

Of course the Report of these eminent gentlemen ought to be considered quite seriously, but when one recalls the fact that the decisions of all previous Hague Conventions and Geneva Conventions were used by every belligerent country during the War 1914-18 chiefly for the purpose of throwing mud on its opponents because they broke the rules of all these Conventions it is difficult to do otherwise than treat the whole affair as rather a poor joke. The old proverb that "All's fair in love and war" is based on the essential human being and no code of rules will ever carry any weight when a fight is in progress.

The only real use for such a code is to increase the amount of the war indemnity which the winner of the war hopes to extract from the loser. And, as our former enemies and future friends the Germans have so successfully demonstrated, it is practically impossible to extract such an indemnity for the reason expressed in that other proverb that "You canna' tak' the breeks off a Hielan'man."

Nevertheless it is quite worth while to consider the latest set of rules of the Great Game, particularly as this Command Paper devotes 59 pages covering 62 articles to the Rules of Aerial Warfare.

The Commission was composed of the representatives of the United States of America, the British Empire, France, Italy, Japan and the Netherlands. Thus it may be seen that the majority of countries which will be concerned in the next war had no representatives there, and that the Commission only represented five out of the twenty-two Allies of the War 1914-18, plus one neutral country.

When one considers that the two chief opponents in the next war, namely Russia and Germany, were not represented at all; and that the barrier of minor states which France is endeavouring to erect across Europe (namely, Czechoslovakia, Poland, Roumania and Jugo-Slavia), were not represented; and that nations so immediately concerned as Norway, Sweden, Denmark, Finland, Esthonia, Latvia and Lithuania, had no part in the discussion, one begins to see that the Commission is not in the least entitled to speak for the people who will be first of all concerned in the next war.

The prefatory paragraph to the Rules of Aerial Warfare states that in the preparation of the code of Rules of Aerial Warfare the Commission worked on the basis of a draft submitted by the American Delegation. One can only imagine that the American Delegation composed their draft in that curious spirit of entirely unwarrantable belief in the reform of human nature which has inspired so many American statesmen and politicians of all calibres, all the way from George Washington and Abraham Lincoln right away down to the late President Wilson and Mr. William J. Bryan.

In the space available it is impossible to do more than quote each rule and make a brief comment thereon but in the Command Paper itself several of these articles are followed by quite long dissertations by the Commissioners. The articles read as follows:—

ARTICLE 1.—*The rules of aerial warfare apply to all aircraft, whether lighter or heavier than air, irrespective of whether they are, or are not, capable of floating on the water.*

The Commissioners point out that for States which are parties to the Air Navigation Convention of 1919, aircraft are divided into State Aircraft and Private Aircraft. Apparently States which are not parties to the 1919 Convention are outside the pale of respectability and all their aircraft may be treated as military aircraft.

ARTICLE 2.—*The following shall be deemed to be public aircraft:—(a) Military aircraft. (b) Non-military aircraft exclusively employed in the public service. All other aircraft shall be deemed to be private aircraft.*

Here one meets the very first snag in the whole idea of Rules of War. When two nations are at war there cannot be any distinction between military vehicles and civilian vehicles any more than there can be a distinction between a soldier and a civilian. Any civilian who is helping in the war is obviously liable to the same treatment as a soldier, and any civilian who is not helping in the war deserves to be killed anyhow. And the same reasoning applies to machinery and premises.

ARTICLE 3.—*A military aircraft shall bear an external mark indicating its nationality and military character.*

This of course is necessary so as to prevent people from shooting down aircraft of their own nationality, but it seems unnecessary to indicate for the benefit of an enemy what a machine is of military or civilian character. One imagines that the only result of this rule will be that a number of extremely well-armed military aircraft will be painted with civilian markings and will thus seek to lure enemy military aircraft to attack them under the impression that they are merely helpless civilians. In fact we shall have in the war armed vessels in the air acting as decoys exactly as had at sea in the War 1914-18 armed civilian vessels, commonly known as "hush-boats," luring German submarines to their destruction.

ARTICLE 4.—*A public non-military aircraft employed for customs or police purposes shall carry papers evidencing the fact that it is exclusively employed in the public service. Such an aircraft shall bear an external mark indicating its nationality and its public non-military character.*

ARTICLE 5.—*Public non-military aircraft other than those employed for customs or police purposes shall in time of war bear the same external marks, and for the purposes of these rules shall be treated on the same footing as private aircraft.*

ARTICLE 6.—*Aircraft not comprised in articles 3 and 4 and deemed to be private aircraft shall carry such papers and bear such external marks as are required by the rules in force in their own country. These marks must indicate their nationality and character.*

In other words our aerial motor-buses and post-office vans will be labelled as such. And in case the labels should misread the driver and conductor will carry their licenses with them. The net effect will be just about as useful as the carrying of papers by merchant ships during the War 1914-18. Actually the only utility in distinguishing public non-military aircraft from military aircraft will be in dealing with neutral countries, in that a non-military public aircraft landing in a neutral country will presumably be permitted to depart whereas a military aircraft will be interned if it cannot get away before it is caught. But it is unlikely that in the next war there will be any neutral countries where along routes which public non-military aircraft are likely to follow.

Incidentally it is worth while to note that the question of public non-military sea-craft did not arise in the last war as all our ocean liners were private property except those which were taken over for purposes of troop transport and as auxiliary war vessels. And they were just as liable to be sunk as were war-ships. Government sea-craft which were not fighting ships, such as light-ship tenders, fishery protection ships, and so forth, stood the same chance of being sunk at sight. In air war the same thing will happen, so we worry with all this formality?

ARTICLE 7.—*The external marks required by the above articles shall be so affixed that they cannot be altered in flight. They shall be as large as is practicable and shall be visible from above, from below, and from each side.*

This is a most amusing rule. Naturally one of the very first things that the belligerents will do will be to equip their aircraft so that the markings can be altered in flight. It is quite good that the point should be raised now, as it will incite some of our ingenious young men in aircraft factories to produce schemes by which markings can be altered while in the air. Our armed merchantmen which were used as decoys habitually flew the flags of neutral countries and hoisted the British flag instead a moment before firing. All of course our aircraft must be able to play the same trick.

ARTICLE 8.—*The external marks, prescribed by the rules in force in each State, shall be notified promptly to all other Powers.*

Modifications adopted in time of peace of the rules prescribing external marks shall be notified to all other Powers before they are brought into force.

Modifications of such rules adopted at the outbreak of war or during hostilities shall be notified by each Power as soon as possible to all other Powers and at latest when they are communicated to its own fighting forces.

It seems probable that this rule will be obeyed as otherwise there is likely to be quite considerable confusion between allies as to which machines are to be shot down and which are not. And it is even well to let one's enemies know what marks one intends to use. But all this will not in the least prevent one belligerent from marking machines with his enemy's marks when he wants to go on some special mission over enemy country. Which is an additional inducement to produce some effective method of altering markings while in the air.

ARTICLE 9.—*A belligerent non-military aircraft, whether public or private, may be converted into a military aircraft*



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provided that the conversion is effected within the jurisdiction of the belligerent State to which the aircraft belongs and not on the high seas.

This is really an interesting rule, provided of course that the next war arrives before military and civilian aircraft have so diverged in type as to make the conversion of a civil aircraft into a military aircraft not worth doing. And even then for certain purposes civilian aircraft will be used as military aircraft just as liners were made into auxiliary cruisers and as trawlers were made into patrol-boats and mine-sweepers.

It is curious that there is no rule forbidding the conversion of military aircraft temporarily into civilian aircraft. In fact the Japanese Delegation, evidently with an eye to

precisely such practices in their own Services, did propose such a rule but the majority of the members of the Commission were of opinion that an article on this subject was not required. For the matter of that none of the articles are really required because they will all certainly be broken if the breaking of them become expedient.

ARTICLE 10.—No aircraft may possess more than a national nationality.

This again is a matter which war alone will decide. An aircraft which poses as possessing more than one nationality can only do so with the idea of perpetrating a fraud on some harmless neutral State. And doubtless there will be many attempts to perpetrate such frauds.—C. G. G.

(To be continued.)

THE ROYAL AIR FORCE.

The London Gazette.

Aug. 19.

GENERAL DUTIES BRANCH.—Flt. Lt. J. R. I. Scambler, A.F.C. (Lt., R.A.), is granted a perm. commn. in the rank stated (Aug. 20). Capt. A. B. F. Alcock, D.S.C., R.M., is granted a temp. commn. as a Flg. Off. on attachment to the R.A.F. for four years (July 21).

The follg. Plt. Offs. are promoted to the rank of Flg. Off.:—G. H. Randle, R. W. G. Lywood (June 20); R. S. Blucke (July 9); C. F. Sealy (July 20).

Flt. Lt. H. J. Edgar is restd. to full pay from h.p. (Aug. 13); Flt. Lt. D. H. Dabbs is transferred to the Reserve, Class C (Aug. 20); Plt. Off. A. D. B. Trevor resigns his S.S. Commn. (Aug. 6).

STORES BRANCH.—Sq. Ldr. (actg. Group Capt.) H. C. Ellis, C.B.E. (Lt.-Col. R.A.P.C.), relinquishes his temp. commn. on return to Army duty (Aug. 14).

Flg. Off. H. J. Dann is dismissed the service by sentence of General Court Martial (June 30).

RESERVE OF AIR FORCE OFFICERS.—The follg. Offs. are confirmed in rank with effect from the dates indicated:—Flg. Offs.—T. C. Lowe, M.C. (Dec. 26, 1923); W. A. Mackay, D.C.M. (June 27); P. T. Hubbard (July 2); J. A. A. Barber (July 29); C. F. W. Dod, H. T. Townsend (Aug. 5); G. B. Powell, A.F.C. (Aug. 12); O. P. Jones, A. S. Wilcockson, R. M. H. Young (Aug. 19). Plt. Offs.—E. C. Brown (July 29); A. Barron, A. E. Betts, A. L. Robinson, R. F. Cathrow (Aug. 5); G. T. E. B. Dorman, S. J. Wheeler (Aug. 19).

PRINCESS MARY'S ROYAL AIR FORCE NURSING SERVICE.—The follg. Sisters resign their appts (Aug. 3):—Miss R. Cassidy, Miss D. H. Rich.

Appointments.

Week ending Aug. 25.

GENERAL DUTIES BRANCH.—Group Captains F. W. Bowhill, C.M.G., D.S.O., to H.Q., Egypt, for duty as Chief Staff Officer, 15/8; K. G. Brooke, C.M.G., to H.Q., Iraq, for Air Staff duties, 15/8.

Squadron Leaders G. S. M. Insall, V.C., M.C., to No. 1 F.T.S., Netheravon, 13/8; C. O. F. Modin, D.S.C., to R.A.F. Base, Gosport, on transfer to Home Estab., 1/9; G. C. Bailey, D.S.O., to I.A.A.D., Henlow, 20/8.

Flight Lieutenants H. G. W. Lock, D.F.C., to No. 13 Sqdn., Andover, 30/9; N. L. Desoer, to remain at No. 2 Sqdn., Manston; C. Porris, to R.A.F. Depot, on transfer to Home Estab., 5/8; A. G. Jones-Williams, M.C., to No. 8 Sqdn., Iraq, 25/7; F. L. C. Butcher, to No. 4 F.T.S., Egypt, 30/7; M. Moore, O.B.E., to No. 3 Group H.Q., Spittlegate, 1/10; G. B. Holmes, to R.A.F. Base, Calshot, 1/9.

Flying Officers H. C. Pyper, to R.A.F. Depot, 23/8; G. R. Hicks, D.F.C., to R.A.F. Base, Calshot, 2/9; T. C. Head, to I.A.A.D., Henlow, 1/9; W. E. Cowan, to No. 41 Sqdn., Northolt, 25/3; W. G. E. Hayman, to No. 7 Group H.Q., Andover, 10/9; G. S. Shaw, to School of Naval Co-operation, Lee-on-Solent, 21/8; C. H. Whitlock, to Station H.Q., Duxford, on transfer to Home Estab., 26/8; W. Smith, to Transjordan H.Q., Palestine, 15/8; E. F. Thorpe, to H.M.S. *Argus*, 10/8; F. H. Davis, to R.A.F. Base, Leuchars, 10/8; J. E. L. Drabble, to Miscellaneous Details, Andover Station, 20/8; J. Wesley, to No. 1 S. of T.T. (Boys), Halton, 1/9; C. W. H. Moller, to No. 1 F.T.S., Netheravon, 8/9; A. E. Gliddon, D.S.M., to remain at S. of T.T. (Men), Manston; L. E. Goodman, to Boys' Wing, Cranwell, 21/8; G. H. Bennett, to School of Army Co-operation, Old Sarum, 28/8; O. C. Noel, to School of Army Co-operation, Old Sarum, 28/8; G. V. Carey, to School of Army Co-operation (No. 16 Sqdn.), Old Sarum, 8/8.

Pilot Officers S. R. Sunnucks, to R.A.F. Base, Calshot, on transfer to Home Estab., 29/7; H. P. Morris, to No. 6 Sqdn., Iraq, 1/8; H. L. R. Gough, C. R. Troup, H. N. Davies, and J. A. Mollison, to R.A.F. Depot, 1/9.

MEDICAL BRANCH.—Flight Lieutenant (Medical) W. R. Reith, M.D., A.M., to No. 4 Sqdn., S. Farnborough, 19/8; R. C. J. McCullagh, to R.A.F. Depot, on transfer to Home Estab., 7/8. Flying Officer (Medical) R. S. MacLachy, to Research Laboratory and M.S. of I., Hampstead, on appointment to a S.S. Commn. for short course, 11/8.

STORES BRANCH.—Flight Lieutenant (Stores) P. J. Murphy, to the Packing Depot, Ascot, on transfer to Home Estab., 6/9.

An Accident at Mosul.

The following paragraph is taken from *The Times of Mesopotamia* of July 26:—

The Air Officer Commanding regrets to announce an aeroplane accident at Mosul on July 22, involving the deaths of Sgt. C. A. Dicks, No. 55 Squadron, R.A.F., the pilot, and Muhammad Agha, Deputy for Zakho.

The Deputy, who had made several previous flights, was passenger in a machine flying from Mosul to Baghdad.

Shortly after leaving the ground while turning, the machine became uncontrollable, dived to the ground, and burst into flames.

All attempts to extricate the pilot from the burning wreckage proved unavailing, but Muhammad Agha was dragged clear of the flames by mechanics who were quickly on the spot.

THE SCHNEIDER TROPHY.

He was immediately taken to the Station Hospital, where in spite of every possible medical attention, he succumbed to his injuries about four hours later.

The Times of Mesopotamia in an article on Aug. 2, states that Muhammad Agha Ai Shamdin, the Shaikh of Slifani, is a progressive leader of men in Iraq and although he could neither read nor write was keenly interested in science and inventions and as a member of the Constituent Assembly had frequently flown as a passenger between Mosul and Baghdad. He took an outstanding part in combating Turkish intrigues and propaganda in the neighbourhood of Zakho the remote district in the Kurdish hills in which he lived.

The Schneider Trophy.

It has now been made known that the Supermarine R.50 which was being prepared for the race for the Schneider Trophy will not be able to go to America owing to the fact that the special ungeared Rolls-Royce Condor cannot be completed in time to get the machine tested and despatched.

The machine of the Gloucestershire Aircraft Company Ltd. will, however, leave England on the s.s. *Minnetonka* which she is being carried free of charge by the Atlantic Transport Co. Ltd.

Mr. Hubert Broad of the De Havilland Aircraft Co. Ltd. will go as pilot.

The machine which is being driven by a special ungeared Napier engine is now being completed at Cheltenham and it is hoped that there will be time for tests with the machine on floats at Felixstowe before leaving for the United States. Presumably the performance figures will be kept secret so as not to discourage competitors of other nations.

Meanwhile the U.S. team have for the past few weeks been practising assiduously over the course in Chesapeake Bay.

The Light Aeroplane Competition.

The following are the entries for the Air Ministry's Light Seater Light Aeroplane Competition up to Aug. 21:—

(1) The Bristol Aeroplane Company Ltd. (2) The Bristol Aeroplane Company Ltd. (3) The Cranwell Light Aeroplane Club. (4) William Beardmore and Company Ltd. (5) Westland Aircraft Works. (6) The Westland Aircraft Works. (7) The Air Navigation and Engineering Company Ltd. (8) Short Bros. (9) The Supermarine Aviation Works Ltd. (10) A. V. Roe and Company Ltd. (11) A. V. Roe and Company Ltd. (12) The Blackburn Aeroplane and Motor Company Ltd. (13) F. E. Raine. (14) The H. G. Hawker Engineering Company Ltd. (15) The H. G. Hawker Engineering Company Ltd. (16) Vickers Ltd. (17) George Parnall and Company Ltd. (18) George Parnall and Company Ltd.

Late entries with a fee of £40 will be accepted up to including Sept. 5.

West Indian Air Transport.

Prospects for air transport in the West Indies, along the lines indicated in the recent article which appeared in this paper on the West Indian Aerial Transport Co. Ltd., seem to be particularly encouraging. Major H. Hemming, of the Aircraft Operating Co. Ltd., who went to British Guiana a couple of months ago to survey the proposed route up the Mazaruni River arrived in London on Monday and one learns from him that all is going well.

The Authorities in Georgetown, B.G., realise the benefit to be got from an air line up-country and understand the difficulties which it involves. Thus they are prepared to do all possible help to Viscount Curzon's scheme without expecting too much from it. Major Hemming surveyed some 250 miles of the route and is of the opinion that an air line is a good workable proposition from the flying point of view and can be made a commercial success.

One hopes to be able to record before long that the necessary steps have been taken towards getting together aeroplanes and their equipment for the experimental service which will have to be flown before a regular air line on a big scale is set to work.

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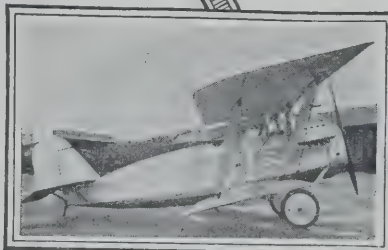
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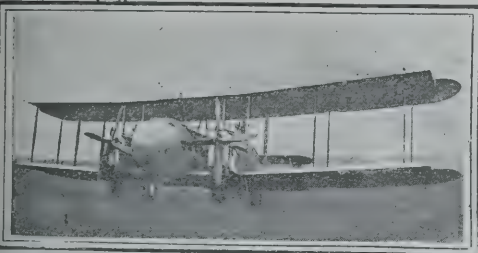
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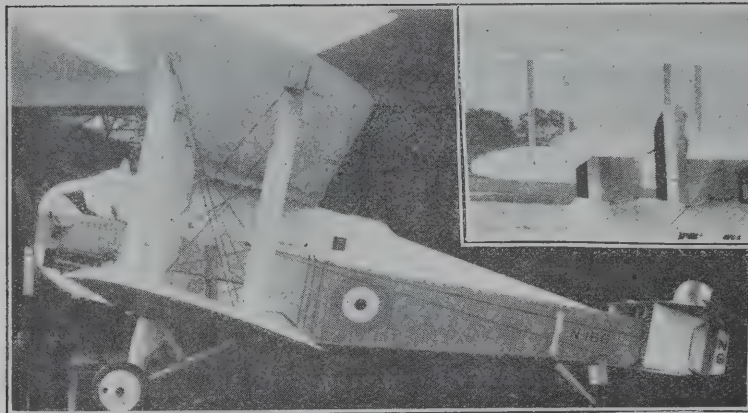
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CUBBING AT BROUGH.



THE CUBAROO.—Side and Three-Quarter Views of the Blackburn bomber and torpedo biplane with Napier Cub engine of 1,000 h.p.

In one of his notable speeches the Lord Weir of Eastwood remarking that some people considered that Aviation was a lost cause recalled a story in which a schoolboy in an examination was asked where the elephant was most commonly found and answered that owing to its large size the elephant was very seldom lost. Presumably it was some similar reason which prompted the Air Ministry's Technical Department to lift the veil of secrecy from the Blackburn Cubaroo and remove it from the "Darkness and Composure" list, for its size is such that now it has taken the air in all its "full but not o'er grown bulk"—as Byron remarked of a certain duchess—it cannot very well be hidden.

At any rate on Thursday Aug. 21 a privileged party of about forty were conducted to the Blackburn Aerodrome at Brough by General Francis Festing and Mr. Rhodes of the Blackburn Company and by Mr. Winter and Mr. Jones of Napier's, to see the first public appearance of the Cubaroo. The party included the military and/or naval attachés or other aeronautical representatives of the United States, Spain, Japan and Greece, and a quantity of assorted pressmen, photographers, and cinematographers. The absence of General (or Air Vice-Marshal) Sir Sefton Brancker was noted and was explained by the fact that during the previous week he had broken his ankle while cub-hunting and was not yet able to do any more. All will wish him a quick recovery.

The party travelled in a couple of saloons labelled "Napier Scientific Research." Mr. Jones explained that this curious description of a number of eminently unscientific people was due to the fact that railway companies in these days only grant special privileges to parties engaged in scientific

research (e.g., geologists, bug-hunters, etc.), and to Scouts, and one or two other special categories. Where the irrepressible G.D. desired to know why we had not described as Napier Cubs? (N.B.—This jest will only apply to those who know something of the Boy Scout movement and of journalists.)

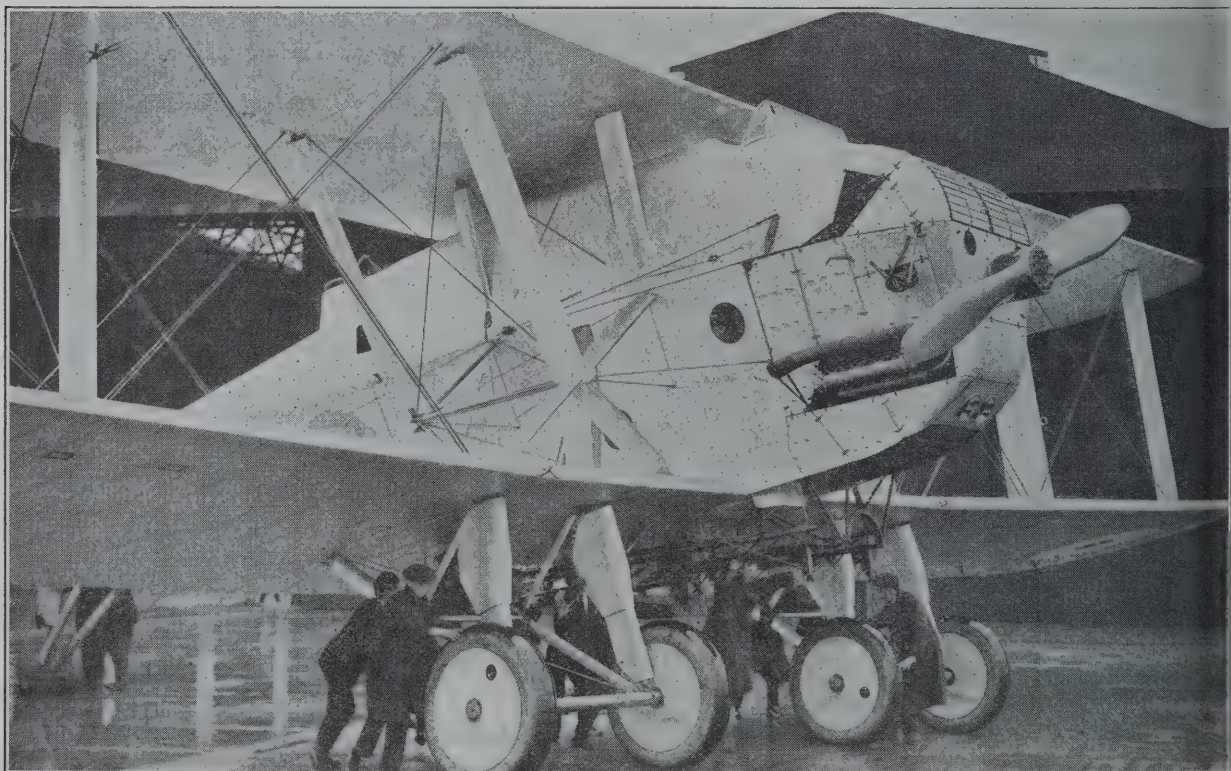
We arrived at Brough in a rainstorm and were received by Major Rennie, deputising for Mr. Robert Blackburn, who is still, one regrets to learn, too ill to appear at business. For Mr. Norman Blackburn who was retrieving the remains of an R.A.F. Reserve school machine written off by a pilot and for Major Bumpus who was away on holiday. Major Rennie in his fourfold capacity did uncommonly well.

The huge Cubaroo was hauled out of her nice clean shed into the pouring wet and her wings were unfolded and laid up ready to fly. General Festing was entreated not to stand too close lest he should be decapitated by a wing as it swung into position. The rest of us stood under the shed for shelter and watched the locking operation.

A RELIC OF THE PAST.

In the same shed was discovered a wonderful historical relic. It is the fuselage, complete with engine, of one of the original Antoinette monoplanes two of which were brought to Blackpool by the late Hubert Latham for the first meeting in England in October 1909. It was found by Robert Blackburn in a garage at Colwyn Bay in 1916. He bought it for £60 and has kept it at Brough ever since.

Apparently it was bought by some enthusiast in 1909, probably Mr. Higginbotham of Southport, and was taken to North Wales with the intention of flying it there.



BRINGING OUT THE BABY.—The first appearance of the Blackburn bomber and torpedo biplane known officially as the Cubaroo. The size may be judged by the men at the wheels, and by the way in which the 1,000 h.p. Napier Cub engine disappears in the nose of the machine.

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FLYING TESTS.—The Cubaroo (1,000 h.p. Napier Cub engine) making her first test flights in public on August 2

Blackburn was unable to discover all its history, but it is certainly one of Latham's Blackpool machines. As such it ought to be restored as far as possible, as it is in very poor condition, and should be carefully kept in the South Kensington Museum.

This reverend relic was dragged out of its retirement and was photographed alongside the Cubaroo, the very earliest and the very latest successful flying machines—for one may fairly call the Antoinette of 1909 the earliest successful flying machine, because although it did not get across the Channel it was a far better aircraft than any of its contemporaries.

THE TEST.

After an hour or so the rain ceased a little and the sun made a gallant effort to assert its independence. Flt. Lt. Bulman, the well-known R.A.F. experimental pilot, who had put the Cubaroo through her preliminary tests, began to sit up and take notice. The machine was wheeled to the edge of the aerodrome. And then funny noises began inside it as a busy little 5 h.p. starter engine which lives in the bows of the beast began screaming round and slowly turned over the sixteen cylinders of the vast Napier Cub.

One confesses to being surprised at the quickness with which the big engine warmed to its work. Most pilots reckon on a quarter of an hour to warm up the average engine. But in ten minutes the Cub was roaring up on full throttle and slowing down smoothly as the throttle closed, as amiably as if it had been running for an hour. And it seems a remarkably smooth engine in spite of its size.

When the engine was warmed up Mr. Bulman taxied out to the shoreward side of the aerodrome and the big machine seemed to handle on the ground as easily as does the ordinary taxiplane. The aerodrome at Brough is quite big enough for any ordinary sort of machine, especially for school work and so forth, but it does look a trifle small compared with the Service aerodromes to which one is accustomed and even with Croydon and Hendon. Consequently those of the visitors who were only accustomed to the big aerodromes doubted whether the machine would get off before reaching the river embankment. There was a wind of about ten miles an hour blowing from the river shoreward which certainly helped matters a little bit, but although she was carrying 3,500 lbs. weight of petrol and was loaded to about half her full war capacity the Cubaroo got off long before she was halfway across the aerodrome.

Those of us who wanted to take photographs and observe the flight to the best advantage stood on the top of a mound about twelve or fifteen feet high, near the end of the East shed. One did not discover the purposes of this mound but it had iron man-traps on top rather like sewer traps, which

naturally prompted the suggestion that it is a tomb in which the School buries its pupils. Anyhow without forcing the machine up at all Mr. Bulman was well above the mound when he passed it and he went over the river embankment at a level a good deal higher than the roof of the sheds.

After that he flew round for about half an hour or so, without doing anything that could be called a stunt, which course would have been foolish in a perfectly new machine. He showed that the Cubaroo is as controllable as any of long-range machine such for example as the D.H.9a. It seems to take her turns and banks quite comfortably and not appear to have any nasty tricks at all.

As one has often remarked in this paper, all aeroplanes may be divided into two classes those which fly and those which are pulled through the air and the Cubaroo is phatically in the class of those which fly.

Mr. Bulman to oblige the assorted photographers and cinematographers flew quite close to the mound over and over again and in doing so demonstrated the beautiful controllability of the machine, for when flying parallel to the river he had the wind sideways and was also liable to bumps and draughts from the huge sheds which were between the aerodrome and the river. Once or twice he flew along dead slow that he had to keep his nose pointed into the wind and was covering the ground crab-wise rather after the fashion of Mr. Longton's crazy flying. The effect with such a machine was certainly entertaining.

The elevator controls also seemed very good for when he opened out his engine every now and then the machine leaped upwards at once like a scout without apparently sagging anywhere.

The landing of the Cubaroo was as good as her take-off. Mr. Bulman was not taking any chances of squatting the machine on the ground in a three-point landing (or rather five-point landing, seeing that she has two undercarriage and four wheels) but she floated into the aerodrome evidently under perfect control, sinking steadily without kiting, after rolling a hundred yards or so with her tail up and down on her tail-skid and stopped in a few yards.

THE ASPECT.

Altogether she seems to be a very nice machine indeed. Naturally her size makes her look slow but one gathers without any special tuning or forcing she does some work comfortably over 100 miles an hour. Also one gathers she is very nice to handle. Mr. Bulman says that she is certainly no more tiring to fly than a D.H.9a and that she answers her controls very much as a Bristol Fighter does.

This is certainly high testimony to the Blackburn design.

Blackburn

AIRCRAFT

Experimental Factory, Aerodrome and Seaplane Base :

BROUGH, Yorkshire.

London Office Address :

AMBERLEY HOUSE,

NORFOLK STREET, STRAND, W.C.2.

Telephone :—Central 7522.

BETTER VIEWED IN MIRROR WITH ONE EYE.



THE BLACKBURN CUBAROO FITTED WITH 1,000 H.P. NAPIER ENGINE.

This colossal Aeroplane has carried out the performance for which it was constructed. Moreover, it is as easily handled as a scout. Designed and built in the Yorkshire factories of the Blackburn Company, it has again proved the ability and reliability of their engineers who have fully justified the confidence placed in them.

The "Swift" Torpedoplane is another accomplishment. This machine is now being built on boats and can be utilised either as a two-seater school machine, bomber or with 18 in. torpedo.

The firm's seaplane school at Brough will be equipped with this type of machine and also amphibious flying boats of their own special design.

The facilities at Brough on the River Humber are excellent for the launching of gigantic flying boats the production of which The Blackburn Company have in hand at the present time.

The Blackburn Aeroplane and Motor Co., Ltd.,
OLYMPIA, LEEDS.

Telegrams :—"Propellers, Leeds."

Telephone :—601 Roundhay.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

for it requires very nice calculation so to balance the enormous area of ailerons, rudders and elevators of a machine of this size as to make them as easy to handle as the controls of a small machine.

One can hardly call the Cubaroo a beautiful machine because the fuselage is very deep and consequently looks short in proportion to the span of the wings. But she is very impressive, and any aviator from any foreign country who is accustomed to the products of foreign designers cannot fail to recognise the fact that she does represent to-day's high watermark in design and construction.

A FEW DETAILS.

As the Cubaroo is still more or less on the confidential list it is impossible to publish any detail sketches of her construction or to give any accurate performance figures. It is, however, permitted to say that the machine has a span of 88 feet and a length of 54 feet and that the overall height is about 20 feet.

The gross weight of the machine is over nine tons and it is stated that the carrying capacity is approximately $3\frac{1}{2}$ tons. From this one may assume that she could carry about 4,000 lbs. of bombs or torpedoes and very nearly two tons of petrol. A semi-official document issued to the visitors stated that the tail-plane alone is as large as a small aeroplane and that the single propellor (*i.e.*, tractor airscrew) is more than one and a-half times the size of a full-sized billiard table.

The tail planes (being of biplane structure) are somewhat about the area of a Sopwith Pup. Unfortunately nobody present happened to know the size of a billiard table. All they knew were the lengths of cricket pitches and tennis courts which did not in this case apply, except as illustrating that the span of the wings is one and one-third cricket pitches and ten feet longer than a tennis court.

The fuselage is a three-decker affair. The pilot and his aide sit up in the nose on top of the engine, and on their level behind the wings there is a gun-ring so high that the gunner can shoot over the top of the tail. On the first floor is a cabin full of gadgets which must not be described. And on the ground floor is a place for a bomber or observer and there are also doors through which a machine-gunner can shoot under the tail on either side, this operation being made easier by the fact that aft of the cabin the fuselage is triangular in section so that the guns shoot on either side of the keel.

Some idea of the undercarriage may be gathered from the fact that the wheels are four feet high and that there are

four of them. The official communiqué states that each tube would make a useful raft able to carry six men, there does not appear to be any provision for extracting tubes from the wheels in the event of the machine alighting in the water during a long-range torpedo raid.

It appears that the Cubaroo has not yet been officially named. The last time one saw a machine thus treated was the first of the Australian Fairey IIIDs in which case a champagne bottle was skilfully slung so that on being released it would burst and the machine would be christened. Dame Mary Hughes it bumped accurately on the boss of the airscrew. The suggestion was made at Brough that the proper way to christen the Cubaroo would be to start up the engine and to hurl a bottle of champagne into the revolution of the airscrew. Undoubtedly the effect would be to distribute champagne all over the machine, almost to the extent of immersion, but it strikes one that the airscrew itself might conceivably distribute itself over the assembled company. Therefore one fancies that the suggestion will not find favour.

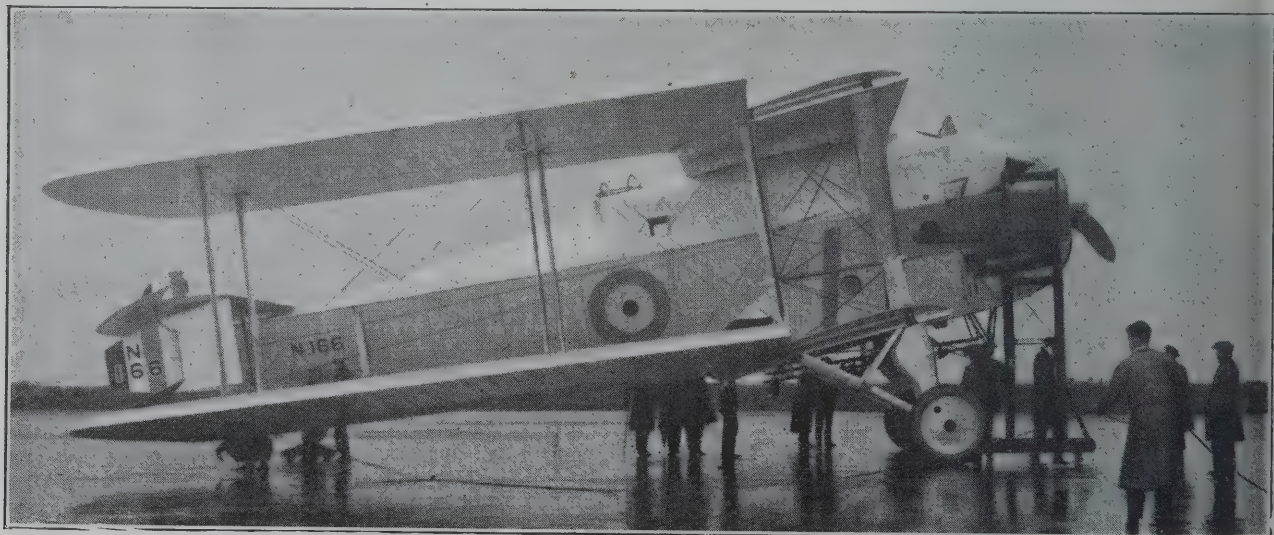
One would add that there is no truth in the rumour that the Cubaroo was originally designed as a single-seater scout for the use in the next war of a Lord who did very good work in the Flying Services during the last war and still takes an active part in British nautics.

That of course is by the way. To be quite serious, the machine is one of the finest jobs of work one has ever seen and is a credit to that pioneer of aviation Mr. Robert Brough and to all his staff.

Of the Napier Cub 1,000 h.p. engine there is no need to speak. It has been described and illustrated in this paper so often that all readers must be familiar with it. The engine has now proved itself to be a thoroughly sound engine and is building up for itself among the high-powered engines of the world a reputation which is as sound as that of the 450 h.p. Napier Lion, an engine which in the service of the Royal Air Force as well as on racing and commercial aircraft has a reputation second to none.

It seems possible that though the Cubaroo has only just been built this year one example of it may be seen at the R.A.F. Pageant despite the custom in the past of never showing a machine in the new machine park till it is about 10 years old.

It remains only to compliment the Blackburn Company, the Napier Company on their joint production and to thank both firms for a very interesting and enjoyable visit to Brough.—C. G. G.



EN NEGLIGEE.—The Cubaroo with a wing folded, getting ready to get up.

A King's Cup Echo.

In the report of the competition for the King's Cup it was remarked that the D.H.50s were actually faster than the Fairey IIID. It has been pointed out that the actual times on the stages disprove this. Mr. Cobham passed the turning point at Leith at 8.34 flying low and turned at Dumbarton at 9.5 making 31 minutes over that stretch. Mr. Macmillan also passed Leith at 8.34 flying fairly high where he would probably meet a stronger wind than low down and he passed Dumbarton at 9.2 making 28 minutes of the stretch. On this showing he could give the D.H.50 three minutes in 50 miles which would make sixty minutes in a thousand miles. On the handicap he was set to give the D.H.50s forty minutes in 960 miles.

Presumably both Mr. Cobham and Mr. Macmillan flew dead compass courses and the assumption is that Mr. Cobham managed to make up his time by flying very low the whole

way and so escaping the full strength of the head wind against which the competitors had to fly from Dumbarton to Falmouth. At any rate the results show that the handicappers were not very far out in their judgment.

Roumanian Purchases.

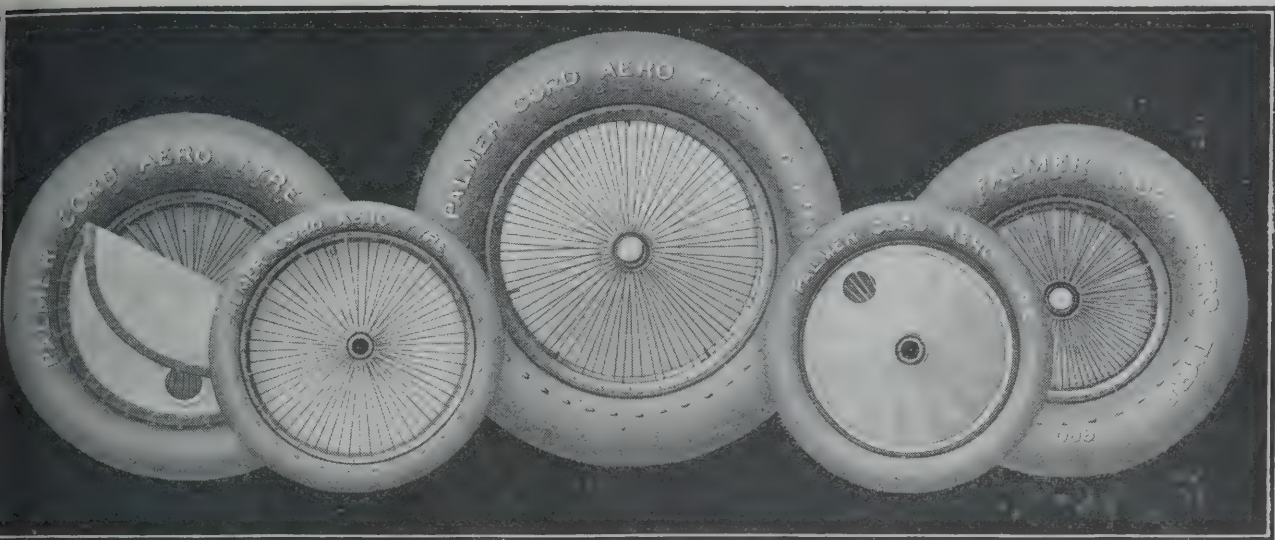
The Crown Prince of Roumania, who is acting as Inspector General of the Roumanian Flying Corps flew from Amsterdam to Croydon on Aug. 17 after having inspected the Fokker works with a view to placing orders for the Roumanian Government.

The Roumanian Government has already placed orders for over 500 aircraft in England and France. These include 120 Potez XV two-seater reconnaissance biplanes (400 h.p. Lorraine-Diétrich engines), 70 Siddeley Siskin single-seater Scouts (325 h.p. Siddeley Jaguar engines) and 20 heavy bombers of an unknown British type.



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STANDARD SIZES

Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore				Length	Bore				Length	Bore	
75×55	168	m/m 111.12	m/m 25.4	m/m Central	700×100	96	m/m 178.	m/m 55.	m/m 132/46	1000×150	201	m/m 185.	m/m 60.32	m/m 125/60
00×60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	1000×180	148	220.	80.	Central
50×60	30	89.	31.75	Central	650×125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
75×60	21	160.	28.	Central	750×125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900×230	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
00×75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
00×75	78	178.	44.45	132/46	800×150	82	185.	55.	135/50	1100×220	134	220.	66.67	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	"	136	250.	80.	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	1250×250	133	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
0×100	77	178.	44.45	132/46	1000×150	169†	185.	55.	135/50	1500×300	115	304.8	101.6	Central
"	92	185.	55.	135/50	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	95	185.	55.	Central	"	131	220.	66.67	Central	1750×300	139	400.	152.4	Central
					"	150	185.	55.	Central					
					"	167	185.	55.	125/60					
					"	174	250.	80.	Central					

*Wheels Nos. 161, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres.

†Wheel No. 169 is fitted with Ball Bearings.

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PARIS 31, Rue la Boétie.

(240)

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

West Indian Seaplane Facilities.

The United States Hydrographic Office has published (Aug. 8, 1924), a Notice to Aviators which consists entirely of notes concerning the facilities existing on the Atlantic Coast of the United States and in the West Indies based on a report made to them by C. S. Zimmerman, the test pilot of the Aeromarine Plane and Motor Co., as a result of his five months' cruise with the Aeromarine metal-hulled flying boat which was described in this paper recently.

This notice mentions 25 harbours on the coasts in question, and gives for each particulars as to their suitability for otherwise for landing seaplanes, the nature of the shelter afforded, the existence or otherwise of fuel supplies, repair facilities, communication with the world at large, and the nature of hotel facilities. In addition the notice gives the position of these harbours and a reference to the chart whereon they are shown.

The general nature of the reports indicates the existence of a surprising number of practically ready-made seaplane bases in Florida, Cuba, Haiti and Porto-Rico, and suggests that there are great natural facilities for seaplane services in this part of the world.

The Bristol Cherub Type Tests.

The 1,095 c.c. Bristol Cherub engine which is expected to be the power plant of the great majority of the machines taking part in the forthcoming Light Aeroplane Competition has been submitted to official tests under supervision of the Air Ministry, and satisfactorily completed these tests on July 26. The engine in its latest form is well shown in the photographs here reproduced.

The rated power of the Cherub is 24 b.h.p. at 2,500 r.p.m., the maximum power is 32.6 h.p. at 3,200 r.p.m. corresponding to a B.M.E.P. of 121 lbs. per sq. in., and the weight of the engine complete with carburettor, magneto, airscrew, hub and bolts, is 86 lbs.

The tests completed included a 25-hours' endurance run, of which 10 hours were run non-stop. Twelve and a-half hours at 90 per cent. full power (21.6 h.p. at 2,500 r.p.m.) were run on the dynamometer, eleven and a-half hours on an airscrew at 2,550 r.p.m. and one hour on the dynamometer at full throttle, 26.4 h.p., at 2,500 r.p.m.

Following this test the engine was run for one hour on the dynamometer at 3,360 r.p.m. and 31.8 h.p., and for a further one hour at 32.6 b.h.p. at 3,200 r.p.m.

The fuel consumption at 26.4 h.p. and 2,500 r.p.m. was .625 pints per h.p. hour. At full power, 32.6 h.p. 3,200 r.p.m., the consumption was .582 pints per h.p. hour.

On the dynamometer endurance test at 21.6 h.p. at 2,500 r.p.m., the oil consumption averaged one pint per hour and the fuel consumption 13.35 pints per hour—or at the rate of .62 pints per h.p. hour.

It will be observed that the standard 50-hours' endurance test usually imposed on new engines before the type is considered airworthy has not been imposed in this case. It is not clear whether the engine is officially regarded as a modification of the earlier type Cherub which completed a full type test at a lower power last year and therefore as not requiring the full test, or whether the acceptance of a 25-hour test is a concession in regard to light aeroplane engines generally, or represents a special concession for the purposes of this year's competition.

Lest We Forget.

Information is wanted concerning Americans who served in the R.N.A.S., R.F.C. and R.A.F. during the War 1914-1918. This information is required by the Navy League of the United States for the war record which is now being compiled. Any readers of THE AEROPLANE who served with American aviators during the War are requested to communicate the names of the said citizens of the U.S.A. the numbers and types of the squadrons in which they served to Miss L. S. M. Robinson, Secretary of Department 6, Box 2133, Middle City Station, Philadelphia, U.S.A.

Furthest North.

As has been widely recorded, the Avro seaplane belonging to the Oxford University Arctic Expedition, after its exciting adventure adrift and its subsequent rescue and overhaul has made an extremely successful flight across North Eastland (Spitzbergen) from east to west, which was the most northerly flight made by an aeroplane, reaching latitude 80 deg. 15 min. north.

In connection with this flight Armstrong-Siddeley Motors Ltd., makers of the Lynx engine which is fitted to the machine, have received from Mr. George Binney, leader of the expedition, on the motor-ship *Polar Bjorn*, the following wireless message:—

Siddeley, Coventry: Lynx engine beaten furthest north flying record, 80.15, working excellently in continuing seaplane work under rigorous conditions. Place full reliance on Lynx. Binney, Oxford Expedition, North Eastland.

A Change of Address.

The Head Office of the British Petroleum Co., Ltd., contributors of "B.P." Petrol has been moved from Fenchurch St., London, to the new building of the Anglo-Persian Oil Co., Ltd., Britannic House, Moorgate, E.C.2.

New Technical Literature.

United States National Advisory Committee for Aeronautics. Report No. 181:

The Influence of the Form of a Wooden Beam on its Stiffness and Strength, II. Form Factors of Beams subjected to Transverse Loading only. By J. A. Newlin and C. W. Trayer.

Report No. 185.—The Resistance of Spheres in Wind Tunnels in Air. By D. L. Bacon and E. G. Reid.

Report No. 186.—The Application of Propeller Test Data to Design and Performance Calculation. By W. S. Diehl.

Technical Note No. 193.—High Altitude Flying. By Paul B. Farnham and Thomas Carrol.

Technical Note No. 194.—A Method of Determining the Dimensions and Horse-power of an Airship for any given Performance. By P. Burgess.

Technical Note No. 195.—On the Distribution of Lift along the Span of an Airfoil with Displaced Ailerons. By M. M. Munk.

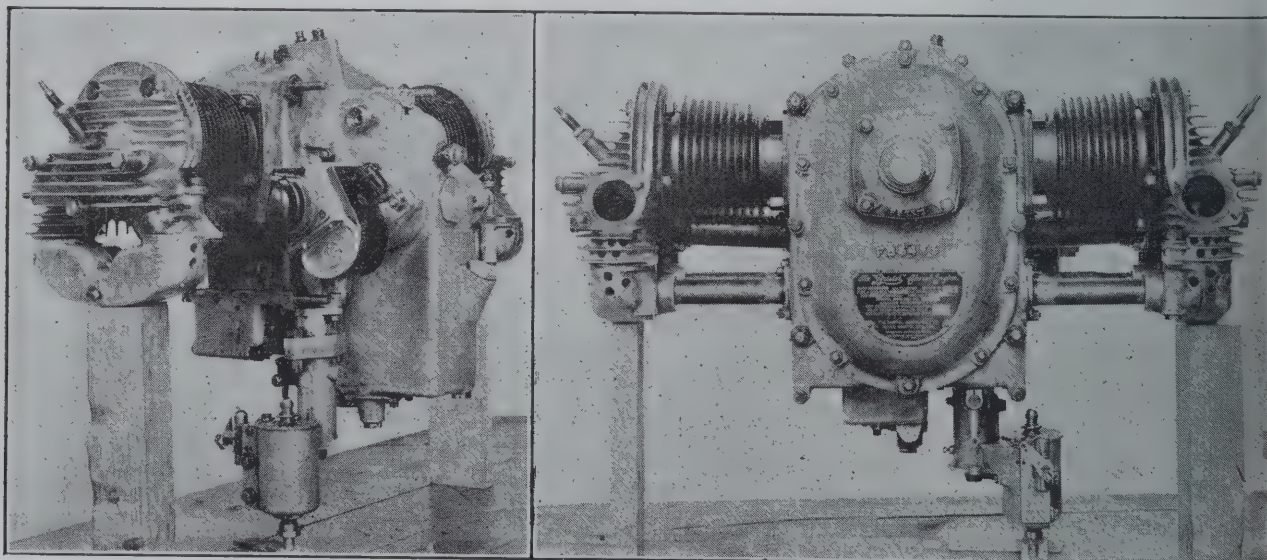
Technical Note No. 196.—Remarks on the Pressure Distribution on the Surface of an Ellipsoid moving Translationally through a Perfect Fluid. By M. M. Munk.

Technical Note No. 197.—Some Tables of the Factor of Apparatus. Additional Mass. By M. M. Munk.

Air Publication 859.—Descriptive Handbook of the Eagle VIII and Falcon III Aero-engines. Published by H.M. Stationery Office. 1s. 6d.

The Institution of Aeronautical Engineers. Minutes of Proceedings No. 9.—Containing: The Loth Leader Cable System for Steering Aeroplanes—By J. Gray, and Reminiscences of the Early Days of Aviation at Brooklands—By L. Howard Flanders. Price 1s. 6d. net.

The Steel Construction of Aeroplanes. By Harry Harper. Published by Robert MacLachlan and Co. Ltd., Glasgow. Price 12s. 6d. net.



The Production type Bristol Cherub which has just passed Air Ministry Tests.

THE WINNING PILOT'S OPINION OF THE "PUMA".

DUMFERTON.

LEITH.



THE DE HAVILLAND AIRCRAFT CO LTD
STAG LANE AERODROME EDGWARE MIDDLESEX
CONTRACTORS TO THE AIR MINISTRY



21st August, 1924.
Ref. AJC/WL.

Messrs. AIRCRAFT DISPOSAL CO. LTD.
Regent House,
Kingsway, W.C.2.

Dear Sirs,

Having been successful in winning the KING'S CUP AIR RACE for 1924 on a D.H.50, fitted with a 240 H.P. SIDDELEY 'PUMA' Engine, I feel I must write to express my appreciation of the PUMA Engine as supplied by you. Throughout this race of 1,000 miles flown at an average height of about 100 feet, I ran the PUMA at full throttle, getting 1,500 revs. for nearly 9 hours' flying.

Nearly all my big flights in connection with the DE HAVILLAND HIRE SERVICE, such as -
My 12,000 Mile Tour, in which I flew 130 hours without overhaul, in mostly Tropical Climates.
My Flight from Belgrade to London in a day.
From Rome to London in a day.
Again from Madrid to London in one day.
An 8,000 mile Tour through Europe and North Africa.
Winning the £1,000 prize at the International Competition at Gothenburg last year - and
Over 2,000 hours' flying for the last 3 years in connection with THE DE HAVILLAND AIRCRAFT COMPANY - have been done on SIDDELEY 'PUMA' Engines.

I think the PUMA continues to hold its own as the best commercial engine, owing to its reliability, accessibility and endurance.

In conclusion I wish to state that the PUMA will stand a lot of hard punishment, and will respond to kind treatment and throttling down, by giving continual good running.

Yours very faithfully,

CHIEF PILOT, FOR THE DE HAVILLAND AIRCRAFT CO. LTD.

THE DE HAVILLAND 50 MACHINE
(PILOT MR A.J. COBHAM) WHICH WON
THE KING'S CUP RACE
- 1924 -

WAS FITTED WITH A SIDDELEY
"PUMA"

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THE GLOBE TROTTERS.

THE AMERICAN EXPEDITION.

Owing to the prevalence of ice round Greenland and particularly in the region of Angmagssalik the U.S. Army Expedition decided to abandon that place as a landing, and fly straight to Frederiksdal in the extreme south of Greenland. The distance from Reykjavik to Frederiksdal is 825 miles and is the longest single flight to be attempted by the American expedition.

On Aug. 18 an attempt was made to get off but one of the Douglas World-Cruisers broke a spreader bar of the float undercarriage and the other machine broke an airscrew. These two accidents were attributed to the fact that the aeroplanes were carrying the heaviest load of petrol and oil attempted since the start of the flight.

The U.S.S. *Richmond* carrying spares for the machines arrived at Reykjavik on Aug. 20. Preparations had been made to send spare parts by the ship-board aeroplane carried by the *Richmond* but heavy gales interfered with this arrangement. Repairs were made and an attempt to leave for Frederiksdal on Aug. 20 but persistent bad weather caused the postponement. On Aug. 20 the U.S.S. *Richmond* left to take up its position 70 miles west of Iceland.

Early on Aug. 21 the two Douglas seaplanes carrying sufficient petrol for 13 hours and accompanied by Signor Locatelli on the Dornier Wal, left for Greenland.

Ten hours later the two American machines arrived at Frederiksdal. The flight was made in good weather conditions except for the last 150 miles when they encountered drizzling rain.

The U.S. cruisers *Richmond* and *Raleigh* together with destroyers were immediately despatched to search for Sig. Locatelli who had proceeded ahead of the Americans and of whom no news had been received since leaving Iceland.

THE ITALIAN EXPEDITION.

On Signor Locatelli's arrival in Iceland he was invited to join the American expedition in their flight across the Atlantic. He left Reykjavik in company with them on Aug. 21. He went ahead and no news had been heard of him up to Aug. 23.

It was thought that he passed beyond Frederiksdal to Avigtut or decided to fly on to Belle Isle, Newfoundland. U.S. cruisers were ordered to search the sea east of Cape Farewell in the event of his being forced to alight out of sight of the American machines.

He was picked up 125 miles East of Cape Farewell at 23.25 hrs. on Sunday, Aug. 24. By his wish the aeroplane was sunk and thus joins the machines of other Globe trotters under the sea.

THE ARGENTINE EXPEDITION.

On Aug. 18 Major Zanni and Signor Beltrame who are attempting to fly round the World on Fokker-Napier equipment, arrived at Hanoi from Bangkok.

On Aug. 19 they attempted to leave Hanoi for Canton but in taking off from the Baehmi aerodrome the wheels of the undercarriage sunk into the ground made sodden by the heavy rains and the machine overturned. The crew were unhurt but the machine was in the words of the newspaper correspondent "put out of action."

Major Zanni has given orders that the Fokker CIV seaplane (Napier Lion engine) awaiting him at Tokyo shall be sent to Hanoi and on its arrival he will continue his flight.

The Napier Company have received the following telegram from Major Zanni:—

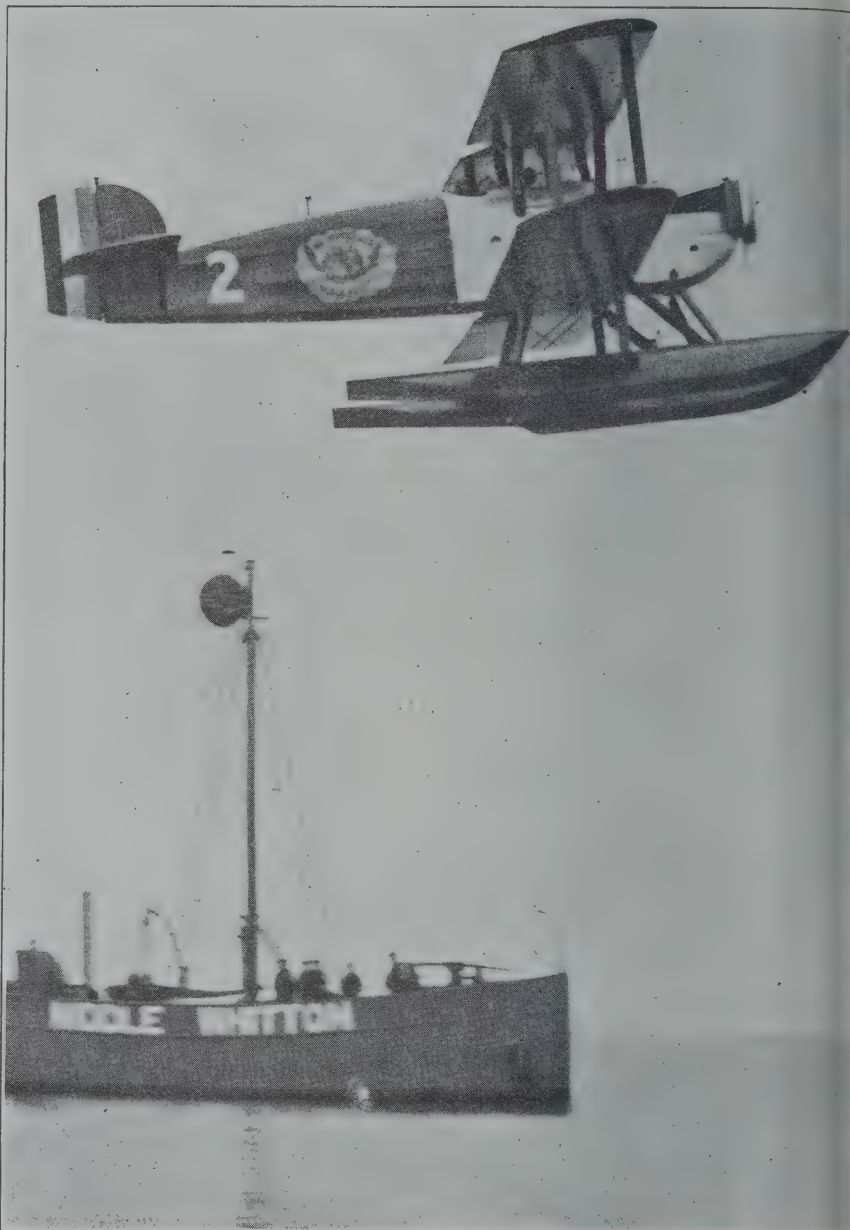
"Nobody hurt. Napier which ran wonderfully without touching since leaving Amsterdam is undamaged. Am waiting the seaplane from Japan to continue."

The distance from Amsterdam to Hanoi is 7,500 miles.

It is possible that despite his unfortunate mishap Major Zanni may still cover the distance from Paris to Tokyo in less time than Lieut. Peltier Doisy.

The Reparations Zeppelin.

According to *The Times'* correspondent in Berlin, L.Z.126, or, according to American terminology, Z.R.111, is now in process of inflation and may be expected to undergo her final works trials during this present week at Friedrichshafen.



THE LAST OF ENGLAND.—Mr. Lowell Smith leaving the Humber.

L.Z.126, which has been built on account of reparations to the Zeppelin Co. for the United States Government, is the first large rigid airship which has been designed and constructed for civilian purposes since the end of the war. With the exception of L.Z.104 (L.57), which was specially lengthened for long-distance work, the new ship is the largest in point of capacity yet produced by the Zeppelin firm.

It is, however, shorter even than the L.Z.113 (L.70) type although of larger capacity, being only 200 metres (656 ft. long) against the 226 metres (L.Z.104) and 211 metres (L.Z.113) of earlier types. The maximum diameter of L.Z.126 is considerably increased—to 27.64 metres instead of 23.9 metres in the later Zeppelins. There is practically no parallel body.

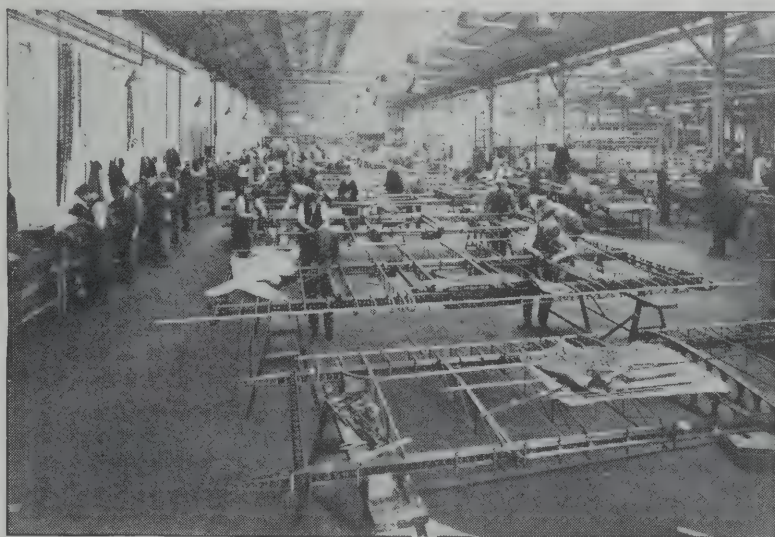
The ship is driven by five Maybach engines of an entirely new type. These are of the 12-cylinder V type developing 400 h.p. each. These engines are fitted with a sliding cam shaft reversing gear so that reversal of the engines themselves is used for manoeuvring purposes. One engine is fitted in a centre line gondola aft, the other four in two pairs of side-by-side gondolas.

The normal fuel capacity is 17 tons—sufficient for 78 hours or 8,400 km. (5,200 miles) at a cruising speed of 108 km. (67 m.p.h.). The maximum speed is 122 km. (78 m.p.h.).

The capacity of the ship is 70,000 cubic metres (2,470,000 cub. ft.) giving a total lift of 81,300 kg. (80 tons) and the disposable lift is about 41,000 kg. (40 tons).

1919 — 1924

PRODUCTION of ALL METAL AIRCRAFT



Assembly of Metal Wings at the Boulton & Paul Works.

TO the ample floor space in the wing assembly shop, at the works of Boulton & Paul Ltd., may be attributed the fact that a large output on this side of aircraft production can be attained without congestion of work.

The manipulation of components of metal construction requires highly skilled labour if satisfactory results are to be obtained.

The workmen employed on this class of work by Boulton & Paul Ltd. have acquired their experience and skill through having been engaged on metal construction since its inception.

THIS advertisement is the seventh of an interesting series of announcements dealing with the design and construction of Boulton & Paul Aeroplanes, to appear at regular intervals in this journal.

Boulton & Paul Ltd

Telegrams
BOULTON NORWICH

NORWICH

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 28; Tuesday, 29; Wednesday, 25; Thursday, 28; Friday, 27; Saturday, 24; Sunday, 15.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 106, passengers 555, freight 25 tons.

AIR UNION:

Paris—London: Machines 47, passengers 262, freight 7 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 16, passengers 71.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 6, passengers 15.

DE HAVILLAND HIRE:

Machines 1, passengers 1.

Total number of trips by British machines: 107, carrying 556 passengers.

Foreign machines: 69, carrying 348 passengers.

Comparative Figures:

For week ending Aug. 24:

Machines, 176; Passengers, 904; Crews, 223; Total personnel, 1,127

Corresponding week, 1923:

Machines, 144; Passengers, 724; Crews, 231; Total personnel, 955.

Corresponding week, 1922:

Machines, 176; Passengers, 642; Crews, 303; Total personnel, 945

Corresponding week, 1921:

Machines, 114; Passengers, 437; Crews, 140; Total personnel, 577.

Corresponding week, 1920:

Machines, 123; Passengers, 262; Crews, 154; Total personnel, 416.

Croydon Notes.

Although the number of passengers has not again touched the 1,000 high-water mark reached a few weeks ago, the level remains very much higher than in previous years and Imperial Airways have shown no signs of a receding tide. All their machines are working on the intensive system and this week they have had to inspan Mr. Perry (by permission of the A.D.C.) and the formidable Mr. Courtney (by permission of himself). Both these pilots have been flying D.H.34s on the service.

There is considerable unrest among the inhabitants of Purley owing to the low altitude at which machines cross their houses. Remembering the care-free pilots of war time they seem to be under the impression that there is some sort of competition between pilots as to who can fly lowest over the houses and it is difficult to persuade them to believe that the one thought of a pilot struggling with a heavily-loaded machine is to pass over Purley as high as possible.

It seems that unless the management of Imperial Airways Ltd. have their machines converted to the slot wing and flap type, which they should have done long ago, there will be a considerable outcry which may reflect unfavourably on aviation. It seems that here is the heaven-sent opportunity for the slot wing to prove itself, as it is known that although it does not take a machine to a greater height in a given time it does take it there after covering a shorter ground distance. That is exactly what is wanted in this case. It is in order to carry out such improvements that Imperial Airways Ltd. has been endowed with so much of our worldly wealth.

One of the new type 115 Blériots has been flown by M. Rajac on the Air Union's service recently. This machine is driven by four 180 h.p. Hispano-Suizas, two on the top and two on the bottom wing. It has a span of 82 ft. and with a crew of two and nine passengers can attain a speed of 110 m.p.h.—which is about what a D.H.34 does with one Napier Lion. It is claimed that it can actually take-off with full load on two engines.

At the Aircraft Disposal Company's side Mr. Perry has been carrying out tests with a Renault-Avro. In the sheds two special D.H.9s are being prepared for Mr. Greig's Northern Air Lines. These 9s are three-seaters and the two passenger seats can be removed so that there is a large hold for freight. They are being delivered by air to Belfast this week.—G. D.

Airway Finance.

The following note on the progress of Imperial Airways Ltd. appeared in the finance column of *The Times* on Aug. 26:—

In the prosaic publication, by the Imperial Airways, Limited, of the figures of traffic receipts for the months of June and July there is suggested a noteworthy development in transportation. It is believed that no organisation established to provide air transport facilities has hitherto published, as a matter of routine, a statement of traffic earnings.

Such an announcement promises to be a regular feature of the

business of the Imperial Airways, Limited, and doubtless the figures will be studied closely as they appear. The returns now published, besides showing the receipts for the two months named, set out the revenue of the company to date from the beginning of its financial year on Apr. 1 last. Actually, however, only the return for the months of June and July count, as, since the company first was not fully organised, the receipts did not at once represent the company's true earning power.

The figures for June and July may be set out as follows:—June Miles Flown, 99,710; Ton Miles, 47,353; Receipts for Month, £27,397; July: Miles Flown, 146,840; Ton Miles, 72,827; Receipts for Month, £42,520.

The revenue for the two months indicates that the anticipations the recent prospectus will be exceeded, while, in spite of the restrictions in the way of business at the start, it would seem as if the average minimum of 1,000,000 miles which must be flown in order to entitle the company to the British subsidy may be exceeded, although the Treasury was prepared to make concessions for the first year.

The British Empire Exhibition is evidently exerting an effect on the business by increasing the number of Americans who cross from the Continent to London by aeroplane, and at present the 14 aeroplanes employed in the Paris to London service are known to be working at full pressure.

So far as passenger traffic is concerned, the summer months must of course, be the best, but it is understood that an important feature of the working of the past two months and of the current month which so far shows better results than for July, is the development of the goods traffic. This represents a form of business which is not affected by the time of year.

A Visit to Avro's.

One recently had an opportunity of visiting the experimental works of A. V. Roe and Co. Ltd. As most people know, the Avro factory is divided into two parts. The experimental works at Hamble carry out all the special test work on new types of machines and the production work is all carried out at Manchester.

On arrival at Hamble one discovered Mr. R. J. Parrott, the works' manager, examining a Blackburne Tom Tit engine which had just arrived for installation in the little light monoplane of last year's design. This machine has been bought by the Royal Air Force.

Work was also proceeding on the two-seater light aeroplane for this year's competitions. This appeared from what one could see of it to be of typical Avro design and it has been named the Avis. A light aeroplane to Mr. Rex Pierson's design for the competition is also being built for Vickers Ltd. who have not room to build it at Weybridge.

An exceedingly interesting job in hand is the conversion of a standard Bison to be an amphibian. The machine is mounted on one big central float with wing-tip floats in the appropriate places. This float is of unorthodox design having a sharp end as in boat practice. By this time it has undergone its tests as a float seaplane after which the amphibian gear will be completed.

Repairs were proceeding on sundry Bison which have been flown at ships instead of onto them. The construction of the Bison is such that almost any one portion of it can be repaired without interfering with a neighbouring section. In one case a Bison had been damaged quite slightly by contact with a ship but about three bays of the fuselage which included sundry tanks had been wrecked by ballast weights which the sudden stoppage had caused to run amok.

A very neat job indeed is the Avro-Lynx which is a standard Avro converted to take the Armstrong-Siddeley Lynx. The engine mounting is exceedingly neat and simple and the whole machine can be turned out at a very moderate figure.

The Andover which appeared at the Pageant was undergoing several modifications. Incidentally it is interesting to note that in this machine the first of the series III Rolls-Royce Condors has been installed and so its performance in the air is being watched with much interest. Three more similar machines are under construction and it is probable that the same type will be produced as a commercial machine.

Another exceedingly interesting machine, named the Ava, is under construction, but as this is still on the secret list it must at present be regarded as non-existent.

While having tea with Mr. Roe and Mr. Parrott, Mr. Roe told one that there is a possibility of a commercial flying boat being built in the near future. Incidentally Mr. Roe has recently unearthed a print of a certain Sir Thomas Roe who was Lord Mayor of London in the eighteenth century so that the Roe family can not only claim to have produced one of the earliest aeroplanes but also a quite early Lord Mayor of London.—G. D.

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The Southern Counties Aviation Co.

The Southern Counties Aviation Company who have been operating at Newbury, Cowes and Winchester with a three-seater Avro taking passengers at 7s. 6d. a head were summoned at the Guildhall, Winchester, on Aug. 22 and fined one guinea and four shillings costs for, "Unlawfully using a certain aeroplane during the period between sunset and sunrise over the City of Winchester without carrying the necessary navigation lights in accordance with the Aerial Navigation Order, 1922."

Mr. C. V. Peck, the moving spirit of the concern, has as pilot Mr. T. K. Breakell, who was with the Aerial Survey Co. in Newfoundland. The Company are moving to Port Meadow, Oxford, shortly.

Petrol in Competitions.

With reference to the remarks on the supply of petrol in the light aeroplane competitions in THE AEROPLANE of Aug. 6, Mr. Shaw of Shell-Mex Ltd. expressed the following opinion:—

I was particularly interested to read in your article on the "Light Aeroplane Competitions" the paragraph dealing with "doped" fuels. We feel that the competitions should be won on a spirit which a purchaser of a light aeroplane would be able to obtain at any garage and not some freak mixture made up specially for the competition. The damage done to the engines by these concoctions cannot be lightly passed over.

We should like to point out to you that Shell-Mex Ltd. have never mixed any special "Dope" with their spirit for racing purposes—their standard "Aviation" requires no doctoring for special occasions. In fact we should not feel justified in marketing a spirit which would need "doping" for any race.

We thoroughly agree with your suggestion that all fuel used in the competitions should be tested as being such as is obtainable at any garage. These tests should be carried out by some person who is neither interested in any particular brand of spirit nor in any of the machines entered in the competitions.

On Principle.

In view of the Covent Garden strike one hopes that such commercial aviators as still belong to the Transport Workers' Union are not black-legging on their comrades and confrères, the vegetable porters, by smuggling French beans and Brussels sprouts and other earth-grown edibles from the countries to which they fly.

The solidarity of Labour must be maintained and it would be the worst kind of back-sliding if a Transport Worker at £1,000 a year or so thus thwarted the efforts of his £4 a week brother, the Covent Garden porter, to place himself on a still

higher social level above the mere skilled engineer and £2-10-0 a week.—C. G. G.

PERSONAL NOTICES.

DEATHS.

BREARLEY.—On Aug. 15, at Metheringham Heath, as the result of a flying accident, Charles Victor Brearley, Plt. Off., R.A.F.

DICKS.—On July 22, at Mosul, Iraq, as the result of a flying accident, Sgt. C. A. Dicks, No. 55 Sqdn., R.A.F.

HAYWARD.—On Aug. 15, at Metheringham Heath, Lancs., as the result of a flying accident, George Searle Lomax Hayward, Plt. Off., No. 2 F.T.S., R.A.F., Digby.

WATSON.—At Kirkuk, Iraq, at the end of July, as the result of a flying accident, Myles Birket Foster Watson, Flg. Off. No. 1 (Fighter) Squadron, R.A.F.

According to the *Times of Mesopotamia* of Aug. 2, Mr. Watson crashed from a height of about 100 ft. The cause of the accident has not been definitely established but it is thought possible the pilot was taken ill in the air.

This theory which is so frequently presented as a cause of flying accidents is not a very sound one where the accident occurs over aerodrome, it being generally accepted that a man does not collapse within a few seconds of safety.

MARRIAGES.

BROWN—FABER.—On Aug. 21, at Holy Trinity, Kensington, Flg. Officer Hilton O. Brown to Margaret F. Faber.

FRY—CARRINGTON.—On Aug. 20, at Colesbourne, Glos., by Rev. John Elwes and the Rev. F. A. S. Pfolkes, M.V.O., Chaplain to H.M. the King, Flt. Lt. W. M. Fry, M.C., R.A.F., to Kathleen Mary Carrington, elder daughter of the late Major-General Frederick Carrington, K.C.B., K.C.M.G.

BIRTHS.

BREAKELL.—On Aug. 18, at 136, the Avenue, Church Road, Uxbridge, to Kathleen, wife of T. K. Breakell, Southern Counties Aviation Co., Winchester—a son.

FOSTER.—On Aug. 16, at Windsor Road, Saltburn-by-Sea, to Dorothy (née Pattinson), wife of A. D. H. Foster, Flg. Off., R.A.F.—a daughter.

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Edited by C. C. GREG

Vol. XXVII. No. 10. SIXPENCE WEEKLY.

[Registered at the G.P.O. as a Newspaper.]

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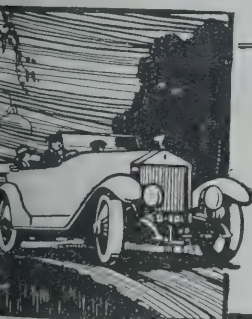


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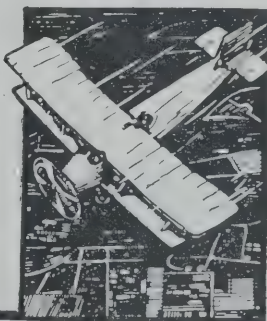
THE LATEST BLACKBURN-NAPIER.—Here is seen the Blackburn Cubaroo (1000 h.p. Napier Cub) piloted by Mr. Bulman taking off from Brough on its first public flight. The machine is of huge size and the prospect of its ever getting to be a full-grown Lionaroo is terrifying to contemplate.



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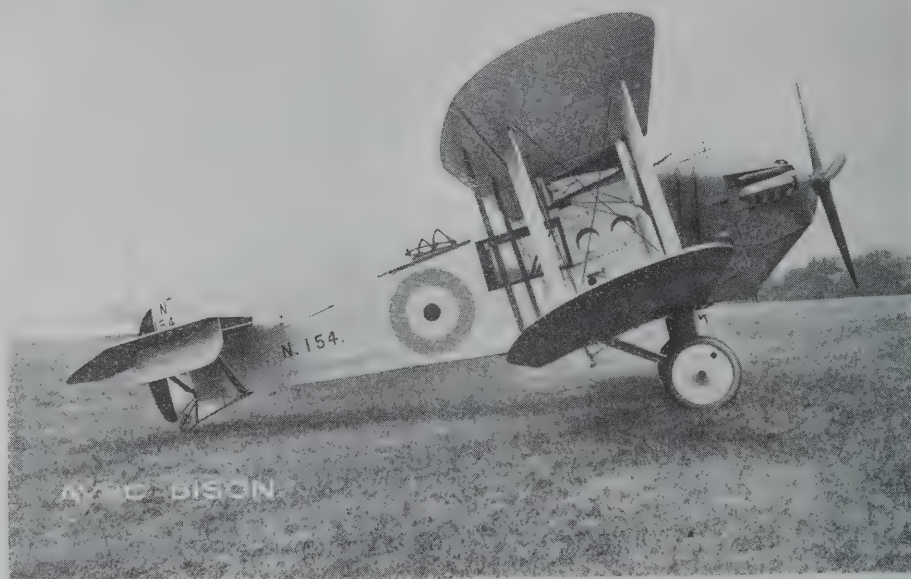
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The AVRO BISON

THE illustration shows the AVRO BISON, a Fleet Gunnery Spotter, specially built for the British Air Ministry. This machine is equipped for taking off and alighting on a ship's deck.

The AVRO BISON is only one example from the wide range of new and successful designs produced by A. V. Roe & Co., Ltd. Other examples will be shown from time to time in AVRO advertisements in this journal.

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ON ACCIDENTS IN THE R.A.F.

During the past two or three months a considerable amount of concern has been shown in the daily press and in Parliament about the number of fatal flying accidents which have occurred to officers and men of the Royal Air Force and the impression seems to be getting about that these accidents are caused by some sort of negligence either on the part of the Air Council or of the Air Staff or of the Supply Department. In a general way the tendency is to blame the Air Ministry. But as the Air Ministry is a purely impersonal body there is little sense and no satisfaction in casting blame so definitely. Therefore it seems right and proper to consider and to offer some explanation of how and why so many accidents happen. In the first place it should be quite clearly understood that thanks to skill and care the R.A.F. has a much lower proportion of accidents than has any other nation, and that in proportion to the mileage flown the accidents are comparatively few. And it should be equally understood that blame can be put upon the Air Ministry nor directly upon any of its departments. Without professing to have any official views on the subject one can assert that nobody is more gravely concerned about the prevalence of accidents, as they are, than are the Air Staff and the Supply Department. Every possible effort has been made by the responsible officials at the Air Ministry to discover the cause of these accidents and to prevent others as far as possible. The Accidents Investigation Sub-Committee whose duty it is to study in detail the cause of every accident whether fatal or not, has done most valuable work and has discovered many of the causes of accidents which would be of intense interest if it were possible to publish them. Unfortunately most of these reports cannot be published because although the investigations may be almost certain of the cause of the accident they do not produce absolute proof of that cause, and publication of the assumed cause together with the inevitable blame attaching to it would in a good many cases constitute a libel on some individual or some firm unless the conclusion of the committee could be proved beyond dispute.

RELATIVE DANGERS.

There is danger in everything, as this story shows. Some time ago a new pilot on a practice flight got into a spin and fell straight into the roof of a shed on the aerodrome. The front and front of the fuselage went clean through the roof, the wings and tail outside. The ambulance and the commanding officer dashed to the shed to collect the body, but to be met by the putative corpse walking unhurt out of the shed through whose roof he had entered and cursing the aeroplane. He explained that he had deliberately put the machine into a spin and that the brute had refused to come out of it. So much in earnest was he that he persuaded the commanding officer to let him go up immediately on a similar machine, which he did, got out of its spin, and landed perfectly; proving that the first machine and not he was to blame. A day or two later an official of the Accidents Sub-Committee arrived to hold an inquest on the wrecked machine, which was purposely left sticking in the roof so that no evidence should be disturbed. While he was standing under it, a chunk of timber or metal fell out of the broken roof, hit the official on the head, and he fell unconscious for several days. Which, if it proves anything, shows that it is more dangerous to be a member of the Accidents Sub-Committee than to be the pilot of an aeroplane spinning out of control.

CAUSES OF ACCIDENTS.

It is impossible to give here a list of the fatal accidents but it is fairly evident that the most common cause of all is the error of judgment on the part of the pilots. There have been some few instances of aircraft breaking in the air either new experimental machines or old war-time machines or reconconditioned or re-built machines of war-time. There have been instances in which the supposed cause has been the breaking of some part of an engine which has torn the aeroplane to pieces or put it out of control. There have been instances in which experimental aeroplanes have been supposed to have got out of control owing to

some strange aerodynamic defect in design and have dived or spun into the ground or water. And there have been several instances of aircraft colliding in the air during practice flying.

But the commonest kind of accident of all is that in which a pilot loses flying speed and consequently loses control of his aeroplane, either when getting off an aerodrome or when landing or when merely flying low and either turning or watching something on the ground, with the result that the machine drops its nose and dives straight into the ground, or may possibly get into a spin and hit the ground before the pilot is able to recover control.

WAYS TO SAFETY.

Collisions in the air can never be prevented any more than collisions on roads and railways and rivers and at sea. But in a great many cases the lives of pilots and passengers in machines which have collided could be saved by making the use of parachutes compulsory. The reason why parachutes are not as yet a standard service equipment for pilots is simply that nobody has yet produced a parachute which has been considered to be sufficiently reliable. One believes that such a parachute is now available in this country and one knows that such a parachute has been in use in America for quite a considerable time, as indicated in this paper some weeks ago.

Parachutes would also in many cases save the lives of pilots whose aeroplanes or engines have come apart in the air, always assuming that no broken part has stunned the crew nor so locked them in the machine that they are unable to get out. That is always a possible happening.

If an experimental aeroplane goes out of control owing to some undiscovered fault in its aerodynamic design the pilot will almost certainly stick to his controls and endeavour to get command again till it is too late to use a parachute. Consequently deaths and injuries from this cause must always be expected. They are in fact regarded as part of the inevitable risks which have been taken by those pilots and observers (using the word in its scientific sense) who have the distinction of being appointed to the experimental stations.

THE MONEY BAR.

There remains then the commonest cause of accident, to which one has already referred, namely the nose-dive or spin following a stall owing to an error of judgment on the part of the pilot. This class of accident can be avoided by abolishing all aeroplanes which are liable to dive or spin if they lose flying speed and by equipping the Air Force from top to bottom with aeroplanes which, if they lose flying speed will merely sink and if let alone will glide forward till they regain their speed. Such aircraft already exist and the only reasons why they are not used throughout the Service are the difficulties of time and expense. The money to build them in such vast quantities is not available and even if the Air Ministry had the money there has not yet been time to build them.

Such money as is available for new aircraft has necessarily been allocated to the production of the most up-to-date possible aeroplanes, first of all for the Fleet Air Arm to prevent the Navy from complaining about lack of attention and secondly to the equipping of the new Home Defence squadrons for which there has been such an insistent demand in Parliament for the last year or so. There has been practically no money to spare for the building of new aeroplanes for elementary training and for ordinary practice flying. The result has been that new pilots have been taught to fly on old types of aircraft and have had to do their practice on higher powered heavier and faster aeroplanes of equally old types.

If Parliament will find the necessary money to build aircraft of the "Safety First" types for the use of learners and inexperienced pilots then the number of fatal accidents will be very materially reduced. But even if that money be found it must be many months, probably a year or more, before the Flying Training Schools can be equipped with such types.

INSTRUCTION AND EXPERIENCE.

There are those who argue that in the absence of safety

aeroplanes accidents might be avoided by better instruction of learners and by more practice flying. To a certain extent that is perfectly true. So far as the instruction is not so good as it might be that also is due to lack of sufficient flying by the instructors themselves. Skill in flying unsafe aircraft can only be acquired by constant flying and if an instructor has not spent enough hours in the air himself he cannot be a really good instructor, even though mentally he has all the qualities necessary to impart knowledge to pupils.

There is a certain amount of truth in the charge that for some years past pilots throughout the Air Force have not done enough flying to keep them fully in practice. In some few instances pilots have avoided flying because they have grown to dislike flying either through war nerves or through not taking sufficient care of their own health. But on the whole the small amount of flying done in the Air Force until a year or so ago was due (A) to lack of mechanics to keep the aeroplanes and engines in proper flying trim or (B) to simple lack of money to pay for petrol.

MECHANICS.

The lack of mechanics was inevitable. As soon as possible after the Armistice nearly all the best mechanics left the Air Force to return to their regular jobs. Such as remained were sent to squadrons overseas which had to fly on active service. The result was that the Home Stations were left practically without enough mechanics to keep the machines in order. Consequently if an aeroplane went wrong or required overhaul it often had to wait weeks before it could be touched because all useful hands were employed on other machines. If each station had been manned by fully trained mechanics each aeroplane could have been kept in constant flying trim by its own crew.

This particular trouble could not be remedied until the boy mechanics, now known as Aircraft Apprentices, from the Boys' Wing at Cranwell and from the training school at Halton had finished their three years of training and were fit to be drafted to squadrons. It is only in the past twelve months that these boys have begun to come through to the squadrons at home and abroad. And one is glad to be able to assert that the majority of them have proved to be exceedingly good mechanics. With their advent to the squadrons it is now possible to increase materially the number of aeroplanes which are constantly in proper flying order.

Also during the past twelve months the Air Ministry has been able to afford a very considerable increase in the quantity of petrol and oil allocated for practice flying. The combined result has been that much more flying has been done in the past twelve months than in previous years since the Armistice. And the Air Staff is now determined that everybody, senior officers and all, shall fly regularly.

SAFETY AEROPLANES AND UNSKILLED PERSONNEL.

But with the increased amount of flying there has naturally come an increase in the total number of accidents even though the percentage in terms of miles flown is much lower. And we must accept such accidents until the additional amount of flying which is now possible has produced sufficient skill both among instructors and among pilots who have passed the instruction stage to avoid such errors of judgment as have caused so many accidents. That is to say we are passing through a transition stage in which more flying is being done with more accidents in consequence and we have not reached the stage when the extra amount of flying has produced the skill necessary to avoid accidents.

Value not Received.

The following letter has been received from an Associate Member of the Royal Aero Club:—

"Sir,—I feel very disappointed that the many small races organised at Waddon in 1922 and the previous year have been discontinued. About the end of 1922 the Royal Aero Club instated Associate Members—one of the attractions put forward being the encouragement and holding of race meetings. One naturally presumed that more meetings would be held than in the past, whether at Waddon or elsewhere would not matter, provided they were accessible.

"The result of getting extra subscriptions has been that throughout 1923 and 1924 no such meetings have been held—there being one exception the Light Aeroplane Meeting at Hendon last Autumn.

"I am sure you feel with me that say five or six week-end meetings a year composed of short races—properly organised—would bring quite large crowds to an aerodrome, with consequent gain to the promoters, apart from the benefit of interesting the Public in flying."

[This strikes one as a well-founded complaint and one would like to see what answer the Committee of the R.Ae.C. can make to it.—C. G. G.]

At the same time one does not argue that Service personnel should be condemned to fly aeroplanes which are inherently dangerous and depend entirely on the skill of the pilots for freedom from accident. What the Air Force must have sooner or later is a full equipment in all classes of aeroplanes, from low-powered training machines to high-powered war machines, which are as nearly fool-proof as possible.

The report of the Aeronautical Research Committee for the year 1923-24 emphasises the need for a higher standard of technical knowledge in all ranks of the Royal Air Force particularly among squadron officers. To a certain extent this is much to be desired. But the Aeronautical Research Committee, composed as it is almost entirely of high-browed scientists, is a little apt to forget that the Royal Air Force is primarily a Fighting Service and as such must be manned by fighting men rather than by skilled technicians. Now your first-class fighting man is quite as often as not a perfect fool at anything of a mechanical or scientific nature. Or perhaps it would be fairer to put it another way and say that the Science of War is a distinct science on its own account, in which its practitioners need have no technical knowledge whatever of the implements which it employs. The technical officer or man exists solely to keep the fighting man's implements in working order.

A trained staff officer may be a genius in the employment and disposal and movement of troops and yet utterly ignorant in mechanical matters. He may be able to win a great battle but he may not know how to take a machine-gun to pieces. Similarly a man may be a great commander or leader of air fighters, or he may be a splendid shot with a machine-gun in an aeroplane, and yet he may not know anything whatever about his aeroplane itself beyond the fact that you push a lever to make it go faster and pull it back to make it go slower. He may even be a bad pilot.

Some of our most wonderful fighting pilots during the War 1914-18 were very brainy fighting men and yet only very average pilots. James McCudden, V.C., was a case in point. He would not have been killed as he was if he had been either a better pilot or had been flying a safety aeroplane of the type which can now be produced and is being produced, though in very small quantities. It is no disrespect to McCudden's memory to say this, for he himself never claimed to be a first-class pilot, as everybody knows who has read his remarkable book "Five years in the R.F.C."

Therefore to sum up this discussion one repeats that no blame attaches to anybody in particular for the accidents which have occurred in the R.A.F., except remotely to those Members of Parliament who have grudged money for the proper equipment and maintenance of the Air Force. The various Departments at the Air Ministry have done their work as well as it was possible for them to do it within the limitations imposed upon them. But we have a right to expect improvements in the future.

Service pilots and experimental pilots must be equipped with parachutes and our pilots, whether trained fighting pilots or merely pupils who hope some day to become fighting pilots, must be mounted on aeroplanes which can be flown by men who are neither jugglers nor tight-rope walkers. That is to say the whole Air Force must be equipped sooner or later with aeroplanes which are of the safety-first or fool-proof type, whichever you like to call them. The money must be found for this equipment and the money must also be found for sufficient mechanics and sufficient fuel to give pilots all the flying they possibly can. And the sooner the better.—C. G. G.

Nomenclature.

Information has been received that the name of the Blackburn Cubbaroo should be spelled in that way and not with single "b."

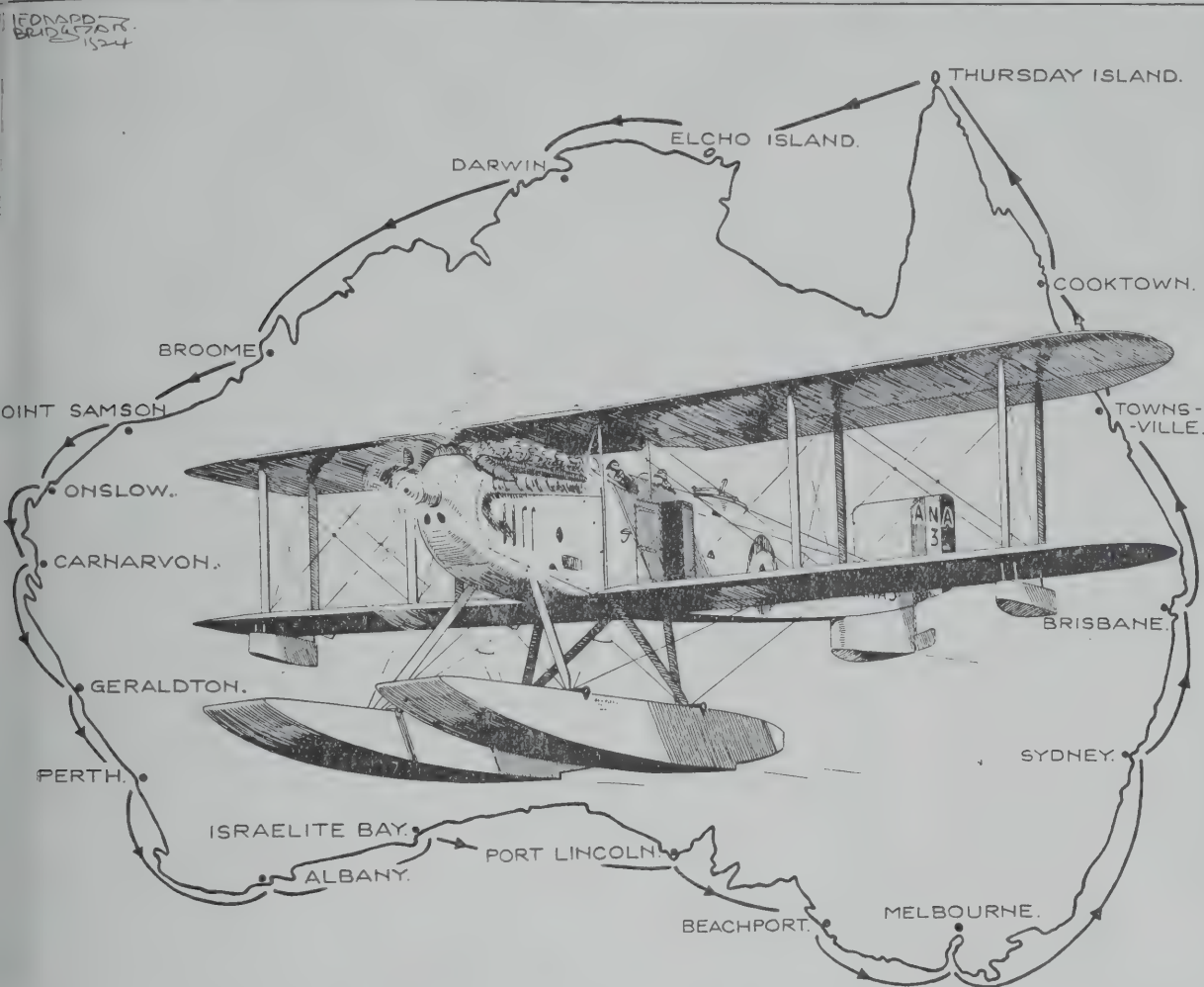
According to the Air Ministry nomenclature scheme heavy bombing machines have to be named after a town in the British Empire, not in the British Isles. Consequently some ingenious person discovered a township in New South Wales called Cubbaroo which is on the railway which starts at Newcastle and wanders up to a place called Walgett. Cubbaroo is close to Burren Junction and alongside a water-course called Dead Bullock.

Much credit is due to the Australian blackfellow who was inspired in the dim past to invent a name which combined those of the 1,000 h.p. Napier Cub engine and the old wartime Blackburn Kangaroo biplane.

An Accident in Ontario.

A Reuter message dated Aug. 18 states:—

Two airmen have been killed and one has had both legs fractured in an accident near Port Arthur (Ontario) to an aeroplane belonging to the Ontario Government Forestry Department. The machine had gone up in search of a missing aeroplane when it suddenly crashed into a swamp from a height of 1,000 ft. The machine which the airmen were seeking was found later.



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8,568 miles in 90 hours

ON A

THREE YEARS' OLD FAIREY SEAPLANE

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Flight-Lieut. IVOR EWING McINTYRE, O.B.E., A.F.C. (R.A.A.F.), pilot of the seaplane, said:—

"The performance of the machine was absolutely excellent throughout. I have had a good deal of experience of seaplanes but this has far surpassed anything that I had expected. You know the old bogies about sun-warping of wings, yet, although the Fairey encountered heavy rains and was then very severely tested by going suddenly into the tropics, the wood spars and general rigging stood up to it perfectly. During the whole flight we never touched a wire on the rigging. Fabric, controls and everything else connected with the machine were perfect."

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

ON THE RULES OF AIR WAR.—II.

GENERAL PRINCIPLES.

ARTICLE 11.—*Outside the jurisdiction of any State, belligerent or neutral, all aircraft shall have full freedom of passage through the air and of alighting.*

ARTICLE 12.—*In time of war any State, whether belligerent or neutral, may forbid or regulate the entrance, movement or sojourn of aircraft within its jurisdiction.*

The White Paper explains that Article 11 embodies the general principle that outside the jurisdiction of any State, that is to say in the air space over the High Seas, all aircraft have full freedom of passage. If this means anything it means that aircraft of two enemy nations meeting over the High Seas must not interfere with one another. Which, as our old friend Euclid used to say, is absurd.

Article 12 is apparently intended to explain that in time of war any State which is at war may prevent aircraft of all other States from circulating in its private air even though commercial treaties may give such aircraft right to fly over that particular country. This also seems an unnecessary rule for obviously any country which is at war is not going to pay any attention to any treaties which are at all inconvenient.

Following this rule is a dissertation on "the knowledge of the existence of the War." It is pointed out that in the days of sailing ships a vessel might be months at sea without knowing that war had begun but that with the development of quicker communications and radio-telegraphy, the period of ignorance had grown shorter and that as aircraft would be unlikely to fly for more than twelve hours at a stretch it might be assumed that they would know of the existence of the War practically as soon as it began. Consequently a provisional article suggested by the American delegates, to the effect that the liability of an aircraft for violation of the laws of war was contingent upon her actual or constructive knowledge of the existence of war, was withdrawn.

So far as one recalls the history of sea wars nobody ever paid very much attention as to whether the skipper of any particular ship knew that war had begun or not. If his ship was unarmed the first armed enemy vessel that came along captured him or sank him as it felt inclined. But certainly nobody ever let an enemy ship go home in peace just because the skipper did not know that there was a war on.

AERIAL BELLIGERENTS.

Chapter III endeavours to define who are belligerents in air war. It is pointed out that the use of privateers in naval warfare was abolished by the Declaration of Paris in 1856 and that belligerent rights at sea can now only be exercised by units under the direct authority, immediate control, and responsibility of the State. And it is laid down that the same principles should apply to aerial warfare so that belligerent rights should only be exercised by military aircraft.

One finds it a little difficult to see the precise moral or political difference between the old-fashioned privateer and the modern "hush-boat" which poses as a peaceful merchantman while it lures an enemy vessel to its doom and hoists its Service flag at the moment when the gun-layer is pulling the trigger. Therefore the following articles appear quite amusing.

ARTICLE 13.—*Military aircraft are alone entitled to exercise belligerent rights. [That is, to fight one another.]*

ARTICLE 14.—*A military aircraft shall be under the command of a person duly commissioned or enlisted in the military service of the State; the crew must be exclusively military.*

ARTICLE 15.—*Members of the crew of a military aircraft shall wear a fixed distinctive emblem of such character as to be recognisable at a distance in case they become separated from their aircraft.*

ARTICLE 16.—*No aircraft other than a belligerent military aircraft shall engage in hostilities in any form. The term "hostilities" includes the transmission during flight of military intelligence for the immediate use of a belligerent. No private aircraft, when outside the jurisdiction of its own country, shall be armed in time of peace.*

It is fairly obvious that a military aircraft would be under the command of a commissioned officer. But the proviso that the crew must be exclusively military seems unnecessary. As is stated in Article 15 every member of the crew must wear a fixed distinctive emblem, presumably a cap badge or something of that sort. Any member of the crew of fighting aircraft would naturally wear some such emblem, otherwise he would be likely to be shot as a spy if he landed in enemy country and became separated from his aircraft.

Incidentally it occurs to one that there are possibilities for a humorous artist to depict the endeavours of troops on the ground to discover whether the crew of an aeroplane who are becoming separated from their aircraft in the act of crashing, something on the lines of the officer in Mr. Kipling's verse who "Used to quit his charger in a parabolic way," do in fact bear the necessary fixed distinctive emblem.

Article 16 seems almost as unnecessary as the others, in that any aircraft engaging in hostilities must necessarily be a belligerent aircraft. If such things as non-military aircraft do exist at all in the next war there is no doubt that they will be used for the transmission of military intelligence by wireless in precisely the same way that merchant ships transmitted such information when necessary or when possible during the War 1914-18.

The official document points out that article 16, referring to the arming of private aircraft, as framed does not extend to aircraft within the jurisdiction of their own State "as such an extension would be an unreasonable interference with the domestic jurisdiction of the State concerned." It strikes one as distinctly comic that this Committee should seriously consider itself capable of interfering with the domestic jurisdiction of any State.

AMBULANCES.

ARTICLE 17.—*The principles laid down in the Geneva Convention, 1906, and the Convention for the adaptation of the said Convention to Maritime War (No. X of 1917) shall apply to aerial warfare and to flying ambulances, as well as to the control over flying ambulances exercised by a belligerent commanding officer. In order to enjoy the protection and privileges allowed to mobile medical units by the Geneva Convention, 1906, flying ambulances must bear the distinctive emblem of the Red Cross in addition to the usual distinguishing marks.*

This article raises the whole question of the Red Cross over again. One doubts whether the Geneva Convention has ever really had much effect. There are certain laws of ordinary humanity which are usually obeyed, even by quite savage races who have probably never heard of Geneva or its Convention or the Red Cross. The first impulse of any good fighting man is to prevent the killing of a wounded man. And it is only one step from that to refraining from firing on a vehicle either of the land, sea, or air which is known to contain wounded men. So long as the Red Cross or the Red Crescent or any other emblem is recognised as marking ambulances any decent fighting man will refrain from firing on them.

On the other hand there are men of all nations, even the most civilised, who will kill wounded men either out of sheer brutality for the pleasure of killing or out of mere callousness because they do not want to be bothered with the trouble of handling the wounded. And there are others, perhaps super-civilised, who believe that wounded should be killed because if they are allowed to go home to be cured they will be available for fighting again, or if they are prisoners will absorb the time of people who would be better employed looking after their own nationals and will absorb food which is wanted for their own army.

There is a legend that the great Napoleon had some hundreds of his own wounded and sick men poisoned because he wanted for fighting troops the transport which would otherwise have had to be devoted to them.

Still one may assume that in air war the Red Cross will receive precisely the same respect that it does in land and sea war without any special rule being made for aircraft.

There is another side to the question. That is the improper use of ambulances which are not actually occupied by wounded. In the Boer War and in the War of 1914-18 we were very fond of charging our opponents with using Red Cross vehicles for the transport of war material and even with using them as cover for riflemen or machine-gunners.

On the other hand in the War 1914-18 our opponents accused us of using Red Cross ships improperly. They said that troop transports crossed the Channel hidden by the smoke of hospital ships. And they accused us of using hospital ships both here and in the Mediterranean for the transport of arms and ammunition and of combatant personnel when returning empty of wounded.

Whether such things were ever done or not one would hate to say definitely. But at any rate we were reduced to carrying officers of neutral powers, mostly Spaniards, on our hospital ships in order to satisfy the Germans that we were not using them as troop transports.

It hardly seems likely that we shall be compelled to take similar measures in the next war, because, as we shall probably be fighting utter barbarians who are themselves capable of any atrocity and any underhand trick which will enable them to score a point, we shall probably do very much better to abolish the Red Cross altogether and to disguise our ambulance aircraft as fully-armed fighting craft.

The next chapter of the Despatch deals with the subject of active hostilities, such as air fighting and bombing attacks. These articles are of such importance that one considers it better to leave them for consideration in a subsequent issue of this paper.—C. G. C.

(To be continued.)



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THERE is no more rigid or thorough test for an engine than the Type Tests carried out under supervision of the Aeronautical Inspection Department of the British Air Ministry. Three times has the Armstrong Siddeley

"JAGUAR" Air Cooled Radial Engine

been submitted to this test and come out triumphant:—

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March '24, „ III "Jaguar," 360 B.H.P., 50 hrs.

August '24, „ IV "Jaguar," 385 B.H.P., 100 hrs.

On each occasion the engine has been run at the rated h.p. and for the number of hours stated—together with high speed and high power tests.

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THE ROYAL AIR FORCE.

The London Gazette.

Aug. 26.

GENERAL DUTIES BRANCH.—The follg. Cadets having successfully passed through the R.A.F. (Cadet) College are granted permanent commns. as Pilot Officers, with effect from, and with seny. of, July 31:—J. H. McC. Reynolds, D. A. Boyle, A. W. Elias, J. E. W. Bowles, R. L. R. Atcherley, W. O. Du Port, H. R. D. Waghorn, G. N. J. Stanley-Turner, J. T. Eve, J. Warburton, A. B. Kay, C. S. M. Woode, J. A. T. Ryde, H. H. Brookes, R. H. Barlow, J. C. Don, F. M. Denny, L. R. W. Tillard, F. W. M. Matthews.

The follg. Pilot Officers are promoted to the rank of Flg. Offs. (June 20):—R. B. Jordan, F. E. Nuttall.

The follg. Pilot Officers on probation are confirmed in rank:—E. A. C. Bushell, E. R. H. Coombes, J. C. Hill, A. C. C. Mason, V. A. C. Ross, P. Stainer, H. St. George-Taylor (May 10); R. W. E. Bryant, S. F. Bulloch, J. E. Clayton, R. K. Coupland, P. Cranswick, M.C., H. T. R. Cripps, E. H. Fielden, T. H. Finney, G. D. Green, P. P. Grey, A. F. Hutton, G. W. P. Irwin, G. H. Jennings-Bramly, J. C. Marcy, F. W. Moxham, J. F. Nicholas, D. Robinson, G. W. R. Russell, A. E. P. Smith, V. W. Soltan, C. F. Stevenson, J. Summers, W. A. Tattersall, F. F. Wilkinson, J. F. Young (July 14).

Flg. Off. W. M. Shoosmith is transferred to the Reserve, Class A (Aug. 23).

The follg. Plt. Offs. resign their S.S. Commns. (Aug. 27):—D. J. Dorey, J. K. Trimmer. Pilot Officer R. G. Rickman relinquishes his S.S. Commn. on account of ill-health (Aug. 27).

MEDICAL BRANCH.—Flg. Off. J. B. Gregor is granted a permanent commn. in the rank stated (Aug. 27); R. S. MacLachy is granted a S.S. Commn. as a Flg. Off. with effect from and with seny. of Aug. 11; Plt. Lt. C. A. Harrison relinquishes his temp. commn. on ceasing to be employed (Aug. 8).

RESERVE OF AIR FORCE OFFICERS.—The following officers are confirmed in rank with effect from the dates indicated:—Flg. Offs.—B. Hackforth (July 19); S. B. Scott, H. Soulsby (Aug. 26). Plt. Offs.—A. J. Brewin (Feb. 22); P. A. Cox, G. G. Matthews, W. Rogers, J. M. S. Taylor, G. G. Williams, G. V. Yorke (Aug. 26).

Appointments.

Week ending Sept. 1.

GENERAL DUTIES BRANCH.—Wing Commander C. C. Miles, M.C., to R.A.F. Depot whilst attending War Staff Course at R.N. College, Greenwich, 15/9.

Squadron Leaders R. B. Maycock, O.B.E., to R.A.F. Depot, 15/9; D. E. Stodart, D.S.O., D.F.C., and A. F. A. Hooper, O.B.E., to R.A.F. Depot, 1/9; L. C. Keeble, F. E. Hellyer, O.B.E., and R. C. Hardstaff, to I.A.A.D., Henlow, 15/9; G. W. Williamson, O.B.E., M.C., to No. 1 F.T.S., Netheravon, on transfer to Home Establishment, 1/9.

Flight Lieutenants C. Pilkington, A.F.C., to No. 13 Sqn., Andover, 14/8; W. E. G. Mann, D.F.C., to No. 56 Sqn., Biggin Hill, 3/9; J. A. Barron, to I.A.A.D., Henlow, 1/9; T. A. Warne-Browne, D.S.C., to No. 5 F.T.S., Sealand, 1/9; C. F. le P. Trench, to No. 1 School of T.T. (Boys), Halton, 1/9; K. A. Meek, M.B.E., to Mechanical Transport Repair Depot, Shrewsbury, 1/9; W. Helmore and W. G. Meggitt, M.C., to R.A.F. Depot, 1/9; P. G. Scott, C. B. Dalison, A.F.C., L. J. MacLeane, M.C., R. T. B. Houghton, A.F.C., I. M. Iles, A.F.C., H. L. Macro, D.F.C., A.F.C., C. E. Maitland, D.F.C., J. D. Breakey, D.F.C., and J. R. Bell, D.F.C., to I.A.A.D., Henlow, 15/9.

Flying Officers F. J. Phillips, to No. 13 Sqn., Andover, 15/8; H. G. P. Ovenden, to remain at Electrical and Wireless School, Flowerdown; H. L. Christie, to R.A.F. Depot, on transfer to Home Establishment, 12/8, and to No. 1 School of T.T. (Boys), Halton, 24/9; O. V. Lee, to No. 13 Sqn., Andover, 14/8; G. Lansdowne, D.F.C., to School of Naval Co-operation, Lee-on-Solent, 15/9; A. B. Cree, to School of Army Co-operation, Old Sarum, 9/9; H. O. Brown, M.M. and C. H. Harrison, to R.A.F. Depot, 1/9; V. P. Feather, to Electrical and Wireless School, Flowerdown, 1/9; J. F. Titmas, to No. 4 Stores Depot, Ruislip, 1/9; R. Jones, to No. 56 Sqn., Biggin Hill 1/9; J. T. O'Brien-Saint, to No. 13 Sqn., Andover, 1/9; E. D. H. Davies, to No. 1 School of T.T. (Boys), Halton, 1/9; A. C. Meredith, to R.A.F. Base, Gosport, 1/9; R. B. Jordan, to R.A.F. Base, Calshot, 6/8; J. M. Glaisher, D.F.C., T. C. Traill, D.F.C., J. Duncan, C. T. Warkington, H. W. Heslop, C. P. M. B. Caillard, G. W. Birkinshaw, R. A. Whyte, F. W. Sinclair, D.F.C., and M. S. Keogh, A.M., to S.A.A.D., Henlow, 15/9.

Flying Officer (Hon. Plt. Lt.) R. H. Stewart Peter, to No. 39 Sqn., Spittlegate, 1/9.

Pilot Officers.—The undermentioned Pilot Officers are posted on appointment to Permanent Commissions from R.A.F. Cadet College, 31/7:—J. H. McC. Reynolds, to No. 11 Sqn., Duxford; D. A. Boyle, H. R. D. Waghorn, to No. 17 Sqn., Hawkinge; A. W. Elias, W. O. du Port, and J. T. Eve, to No. 100 Sqn., Spittlegate; J. E. W. Bowles and J. C. Don, to No. 39 Sqn., Spittlegate; R. L. R. Atcherley, to No. 29 Sqn., Duxford; G. N. J. Stanley-Turner, to School of Army Co-operation, Old Sarum; J. Warburton and L. R. W. Tillard, to No. 13 Sqn., Andover; A. B. Kay, to No. 4 Sqn., S. Farnborough; C. S. M. Woode, to No. 99 Sqn., Bircham Newton; J. A. T. Ryde, to No. 19 Sqn., Duxford; H. H. Brookes, to No. 53 Sqn., Worthy Down; R. H. Barlow, to No. 9 Sqn., Manston; F. M. Denny, to No. 207 Sqn., Eastchurch; F. W. McD. Matthews, to No. 3 Sqn., Upavon; F. W. D. Bushby, to No. 2 F.T.S., Digby, 20/8; R. H. Giles, to No. 30 Sqn., Iraq, 6/8; P. R. Stroud, to No. 70 Sqn., Iraq, 6/8; T. de L. Neill, to remain at No. 5 F.T.S.

MEDICAL BRANCH.—Flight Lieutenants (Medical) W. G. Weston, M.B., to R.A.F. Depot, 25/8; M. Coghlan, M.B., to School of Army Co-operation, Old Sarum, 25/8. Flying Officer (Medical) A. Dickson, M.B., to R.A.F. Depot, 2/9.

CHAPLAINS' BRANCH.—The Rev. R. E. V. Hanson, O.B.E., M.A., to School of T.T. (Men), Manston, 18/9; The Rev. C. O. R. Wormald, M.A., to Electrical and Wireless School, Flowerdown, 18/9.

A Tattoo at Wembley.

A Military Tattoo takes place each evening at 20.00 hrs. in the Wembley Stadium. Aeroplanes of 32 Squadron take part on illuminated Snipe. The machines, flying from Northolt, proceed to drop bombs (imaginary) on a house built up for the purpose in the Stadium. The house catches fire and the aeroplanes are attacked by anti-aircraft guns, one of them being brought down. On the opening night the raiding party arrived too late but the house exploded cheerfully without their assistance. This trifling detail will no doubt be remedied in future performances.

The R.A.F. Cadet College.

The following Cadets who successfully completed, on July 30, 1924, their course of training at the R.A.F. (Cadet) College have been awarded prizes:—Atcherley, R.L.R. (The R. M. Groves Memorial Prize), Elias, A. W. (The Abdy Gerrard Fellows Memorial Prize), Waghorn, H. R. D. (The Sword of Honour).

The Sudan and Egypt.

The Times of Aug. 20 states:—

Khartoum, Aug. 19.—Four military aeroplanes arrived here this morning. Four others are remaining at Atbara, pending the arrival of fittings.

According to the current Air Force List the R.A.F. strength in Egypt consists of two bombing and one Army Co-operation Squadrons, one Flying Training School, an Aircraft Depot, a Stores Depot and an Engine Repair Depot in addition to Headquarters.

A further message from the *The Times* correspondent dated Aug. 23 states:—

The Air Force are preparing landing grounds at various outstations to enable aeroplanes to visit unsettled areas, where the provincial authorities are arranging for demonstration flights.

The Baghdad Murder.

The following is taken from *The Times of Mesopotamia* of July 26:—

Our readers will remember the brutal attack made in Baghdad West last December, by a gang of Arabs, on two R.A.F. officers, Flt. Lt. Pearce and Flt. Lt. Gendle. The former was very seriously injured, and the latter was murdered outright by miscreants who attacked them on the Khirr Bridge road shortly after dark.

The case was a most difficult one to investigate, as the Arabs under suspicion were mostly tribesmen. Following exhaustive inquiries, however, the Criminal Investigation Department secured some incriminating evidence, with the result that two of the accused, Hamdi bin Hassan and Mikhlef bin Hamid Biawir, have been sentenced to penal servitude for life by the Baghdad Court of Sessions, while seven other accused have been ordered to give a bond of Rs. 1,000 each to be of good behaviour for a period of one year, or in default undergo a term of rigorous imprisonment for one year.

The two men who have been sentenced to penal servitude for life were charged as accessories. Evidence was given indicating that some property belonging to the officers had been found in their possession, and one of the two prisoners made a statement to the police as to the manner in which the crime had been carried out. This statement tallied with the account of the affair given by Flt. Lt. Pearce.

A Wahabi Raid in Transjordan.

The Times correspondent in Jerusalem writing on Aug. 17 states:—

In a raid on Aug. 14 the Wahabis, estimated at 1,200 camelry, reached Khirbet Abu Jaber, about ten miles from Amman, and cut the railway to the south of the town. They were held up by local Arabs and Beduin of the Beni Sokhr tribe, who suffered 46 casualties. British aeroplanes and armoured cars arrived 11 hours later and the raiders were speedily repulsed after suffering some 500 casualties. An officer of the R.A.F. and one member of an armoured car's crew were slightly wounded. The Wahabis withdrew across the railway at El Ziza. The Emir Abdullah, who has been in Mecca, returned to Amman on Friday.

The following official version of the fighting in Transjordan was issued by the Palestine Government on Aug. 22:—

At 7.15 a.m. on Aug. 14 a force of Wahabis was reported to be engaged with Transjordan tribesmen near the village of Kastal, south of Amman [the capital of Transjordan]. Air reconnaissance confirmed the report, and at 9.5 a.m. three aeroplanes left Amman aerodrome and bombed and machine-gunned the Wahabis, who thus were forced to retreat.

At 9.50 a.m. three armoured cars got into touch with the invaders and pursued them eastward in a running fight until 11.25, when the cars were forced to abandon the flight through lack of ammunition.

A second air raid left Amman at 10.50 and attacked the Wahabis east of Meshatta shortly after the armoured cars had abandoned the pursuit. A third raid left Amman at 2.30 p.m., located and attacked the retreating Wahabis 40 miles from Amman and fleeing eastward. A subsequent air reconnaissance failed to trace the enemy.

The casualties to the troops were one officer and one other rank slightly wounded. The co-operating Transjordan tribesmen sustained

Records!

*A 450 H.P. Napier
is on view at Wembley
—exhibit 71, Palace
of Engineering.*

Speed A Napier - engined Gloster aeroplane is the holder of the British speed record, 212.2 m.p.h.

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If you are considering the purchase of aero engines a visit to our Works at Acton, by appointment, will interest you.

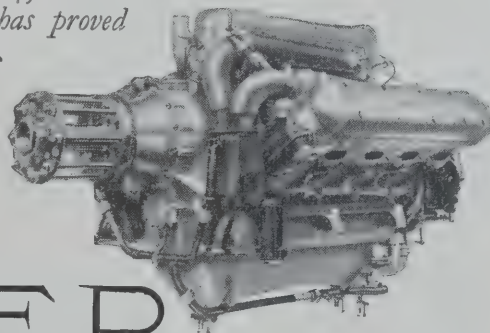
For three years in succession the Aerial Derby has been won by a Gloster machine fitted with 450 H.P. Napier engine—

1921 - 163.34 m.p.h.

1922 - 179.5 m.p.h.

1923 - 192.4 m.p.h.

*In Royal Air Force, Commercial
and Racing circles, the 450 H.P.
Napier Aero Engine has proved
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some losses. The enemy casualties are estimated at several hundreds. The prompt and energetic action of the Air Force reinforcing the local tribesmen, averted a serious menace to the peace of the country and the safety of the capital. All the Wahabi invaders are reputed to have fled eastward, and consequent on the severe losses suffered further aggression is not anticipated.

The R.A.F. Command in Palestine consists of H.Q., one Army Co-operation Squadron, one Armoured Car Coy. with repair and transport stations and a supply depot. In Transjordan there is a Flying Section, an Armoured Car Section and H.Q., and certain military units serving under the command of the A.O.C. Palestine.

British Aircraft for Afghanistan.

The Simla correspondent of the *Daily Telegraph* in a message dated Aug. 22 states:—

According to official news from the Foreign Office in India, the Afghan Government has asked that two British aeroplanes shall proceed to Kabul with a view to their purchase. The machines accordingly flew thither from Peshawur this morning, carrying an Afghan officer, and landed safely.

The *Daily Telegraph* adds the following note:—

We understand that the two machines are Bristol fighters, that is, first-class military machines of the type in regular use by the R.A.F. on the North-West Frontier. The Afghans have long had a few machines, but none of British make. They engaged German instructors to train Afghan aviators, but it is believed that these machines never got away from their hangars. Hence the appeal to the British. We understand that if the two Bristols are purchased their English crews will not remain at Kabul to give instruction.

R.A.F. Housing.

It is suggested that THE AEROPLANE might be useful to R.A.F. officers by putting in touch those who want a house with those who are leaving a house. As THE AEROPLANE exists for the benefit of the R.A.F. the Editor will be glad to hear from officers who are in either state.

An R.A.F. officer who is being moved from London writes that he wants to sublet a furnished house at Pinner. This district being handy for the Air Ministry as well as for Northolt and Uxbridge there ought to be no difficulty in letting it. The house has two single and two double bed-

A Light Aeroplane Club for Yorkshire.

A meeting was held in Harrogate on Aug. 18 at which it was decided that a Light Aeroplane Club be formed and that it should be called "The Yorkshire Light Plane Club."

The object of the club is to gather together a membership of those interested in flying, to teach flying, to provide and maintain a number of single and two-seater machines for the members use.

The following temporary officers were elected: H. Gledhill, Chairman; S. Bates, Hon. Treasurer; E. T. W. Addyman, Hon. Sec.

The following minutes were adopted:—

- (i) That the Club be called "The Yorkshire Light Plane Club."
- (ii) That the Hon. Sec. should communicate with the Air Ministry with a view to obtaining the Government Subsidy and conditions of their grant.
- (iii) That a general meeting be again held on the first Monday evening following the Light Plane Trials at Lymington.

Messrs. Blackburn and Oldroyd, of the Blackburn Aeroplane Co., of Leeds and Brough, were in attendance and promised their support.

The Secretary states that two very distinguished persons have just joined the Club, namely Professor John Goodman, who is known to all past and present engineering students as "The Prof.," and Admiral Henry Wilkin, who in his youth was reputed to be quite a dashing destroyer commander and in his second youth became a member of the Air League. The list of members is increasing rapidly and Mr. Addyman will send particulars by return to anyone desirous of joining. Applications should be sent to Mr. E. T. W. Addyman, Starbeck, Harrogate.

Artillery Co-operation.

The following letter published in the *Air Service News Letter* of May 31, shows how highly efficient the Air Service and artillery co-operation in the U.S. Army has become:—

Headquarters Fixed Artillery, Fort Mills, P.I., Apr. 12, 1924.

Subject: Co-operation of Air Service in recent Artillery Firings.

To: Commanding General, C.D. of M. & S. Bays, Post

1. The undersigned wishes to record, and to request that the Commanding Officer, Kindley Field, be advised of, the appreciation felt by the officers of the Fixed Artillery of the willing, prompt and notably efficient co-operation of the Air Service in the series of Coast Artillery firings recently completed at this post.

2. In each of the twenty-two battery practices in which they participated, the Air Service established contact with the battery firing smoothly and without delay, and gave to the battery commander such prompt and accurate information of the fall of his shots, that as the firing progressed battery commanders became willing to rely solely upon the reports of the Air Service, to the exclusion of dependence upon what is because of our unusual heights of fire control stations, one of the most dependable forms of spotting from land stations to be found in our Coast Artillery Service.

rooms (one with a dressing room), three sitting rooms, garden, orchard and telephone. The house will be available at the end of November or possibly earlier. The rent is 2 guineas a week, the landlord paying the gardener.

Inter-Service Cricket.

R.A.F. v. R.N.—The R.N. beat the R.A.F. in a two-day match at Lords on Aug. 26 and 27, by two wickets. The R.A.F. won the toss and on a slow pitch scored 104 in two hours for the loss of five wickets.

The total for the first innings was 158, *Ft. Lt. Steele* scoring 45 and *Ft. Lt. Marson* 39. The Navy then went in and were all dismissed for 123, *Ft. Lt. Lister-Kaye* taking four wickets for 22 runs in 19 overs, a very fine performance.

The R.A.F. starting the second day's play had already a score of three in their second innings. *Flg. Off. Cocks*, who had been put in on the previous day stayed in an hour and made 32 runs. After lunch *Sq. Ldr. Hodson* and *Ft. Lt. Wigglesworth* came together for the last wicket and made a great stand the innings closing at 173, *Ft. Lt. Wigglesworth* scoring 40 and *Sq. Ldr. Hodson* not out 28.

Ft. Lt. Thornton fielding at cover point was responsible for the loss of the Navy's first two wickets and seven wickets were down for 107. Then *Lt. Bartley* and *Lt.-Cmdr. Douglas Pennant* went in, the former making 41 before he was caught out by *Ft. Lt. Lister-Kaye* off *Sgt.-Maj. Charters'* bowling and the latter scoring 43 not out. Play was extended for an extra 20 minutes after 6.30 and the Navy scored a total of 212 for eight wickets.

The R.A.F. scores were:—

Sgt.-Major Charters, st. *Bartley*, b. *Boucher*, 13; b. *Williams* 11; *Sq. Ldr. Leacroft*, c. and b. *Phillimore*, 3; c. *Brooks*, b. *Halsey*, 0; *Sq. Ldr. C. H. Blount*, b. *Cadell*, 11; b. *Brooks*, 15; *Ft. Lt. L. F. Marson*, b. *Halsey*, 39; c. *D.-Pennant*, b. *Brooks*, 15; *Ft. Lt. C. R. Steele*, b. *Brooks*, b. *Phillimore*, 45; b. *Brooks*, 3; *Ft. Lt. E. Thornton*, b. *Halsey*, 0; b. *Boucher*, 3; *Sq. Ldr. E. J. Hodson*, b. *Cadell*, 20, not out 28; *Lt. Lt. K. A. Lister-Kaye*, b. *Phillimore*, 1; c. *Brooks*, b. *Cadell*, 8; *Ft. Lt. F. A. Fawcus*, not out 16; c. *Bartley*, b. *Cadell*, 5; *Ft. Lt. C. G. Wigglesworth*, 1-b.-w., b. *Halsey*, 0; b. *Cadell*, 40; *Flg. Off. J. J. C. Cocks*, b. *Cadell*, 4; st. *Bartley*, b. *Cadell*, 32. *Byes* 5, w. 1—4 byes 5, 1-b. 2, n-b. 1—8. Total first innings 158, second innings 173.

3 It is hoped that the same measure of co-operation can be had in the practices of these defences in ensuing years.—(Signed) S. I. EMBICK (Commanding).

Air Operations in Morocco.

The Spanish Embassy has issued a statement on the military operations in Morocco which contains the following reference to air operations:—

A report published on July 2 by the High Commissioner at Tetuan announces that as the result of the burning of enemy crops in the unsubmitted zone by aeroplanes discouragement is visibly increasing among the Gomara tribe, which has been dragged into the conflict by the Riffs of Beni-Urriaguel and Temsaman. On July 1 a strong enemy attack against the line of the Lau was discovered and stopped by the Spanish Air Force, which on June 29 had already relieved the enemy pressure against the isolated outpost of Targo, since supported by a column from Tetuan.

Some New Danish Aircraft.

A new Danish aircraft firm, the Dansk Aero Industri, Aktielskabet, has been formed at Copenhagen. It is a branch of the Casparwerke of Travemünde and will build aircraft to the designs of Ing. Ernst von Loessl.

Three types of military aircraft are under construction to be known as types C.J.14, C.C.15 and C.C.18. The C.J.14 is a single-seater pursuit machine to be fitted with a 350 h.p. air-cooled radial engine probably the Siddeley Jaguar; the C.C.15 a two-seater reconnaissance machine and the C.C.18 a torpedo-carrier.

All three machines will follow previous Caspar practice embodying all-wood construction, the wings being the subject of a recent Caspar patent. This patent covers the application of three-ply which allows of very simple interior construction, consisting of two wing spars, and main ribs placed one metre apart, with no intermediate ribs.

These machines are being built on the firm's initiative but it is hoped that the Danish Government will interest themselves in them.

The Durable Jaguar.

Following the success of the Armstrong Siddeley Jaguar air-cooled radial engine in making fastest time in the flight round Britain for the King's Cup it is interesting to hear of a remarkable reliability and performance test of the same type of engine under the supervision of the Aeronautical Inspection Department of the Air Ministry.

A Jaguar engine was submitted to a test of 100 hours' duration with additional high-speed and maximum-power test at a rated power of 385 h.p. and passed this gruelling test in triumph.

Two other Jaguars had previously, in June 1922 and March this year, undergone 50-hour type-tests at 325 h.p. and 360 h.p. respectively. The Jaguar is the first and so far the only engine to comply with the new 100-hour type-test condition.

ROLLS-ROYCE

Aero Engines

THE BEST IN THE WORLD

Some extracts concerning the recent flight of 8,500 miles round Australia from "The Aeroplane" of May 22nd, 1924, entitled

"ON THE AUSTRALIAN TRIUMPH"

"A performance which may fairly be claimed as the finest flight in the history of aviation."

"The durability and reliability shown by the Fairey seaplane and the Rolls-Royce engine have established once more the reputation of English aircraft design and material in the esteem of the aeronautical authorities of foreign nations"

RELIABILITY

Some Successful Flights made by Rolls-Royce Engines:

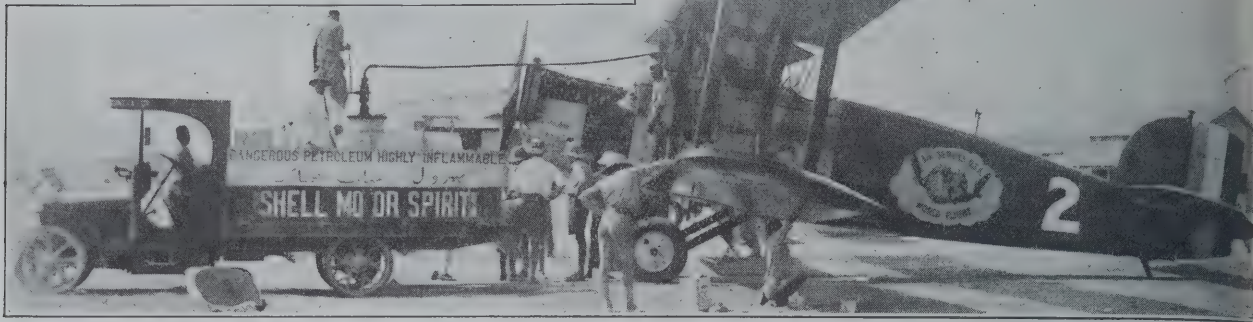
England to Australia	11,500 miles
England to S. Africa	6,281 miles
England to Sweden (and back)	2,450 miles
England to Constantinople	2,160 miles
Across the Atlantic	1,890 miles
England to Finland	1,100 miles
England to Warsaw	1,050 miles
England to Madrid	855 miles

These flights were accomplished without any change of engines en route

ROLLS-ROYCE LIMITED

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TAKING IT ALL IN.—One of the U.S. Army Douglas World-Cruisers being filled with Shell Aviation Spirit on the R.A.F. Aerodrome at Karachi.



THE GLOBE TROTTERS.

THE AMERICAN EXPEDITION.

On Aug. 21 Lieuts. Smith and Nelson on the Douglas World-Cruisers arrived at Frederiksdal, Greenland, from Iceland, and after repairing slight damage to the struts of the float undercarriage of Mr. Nelson's machine, they both flew up to Ivigtut on the west coast of Greenland.

Here the machines were completely overhauled and on Sept. 1 they took off on the last over-sea stage of their world flight. After 6 hrs. 49 mins. flying they reached Ice Tickle, a small cove on the Labrador coast. [One hopes that he was glad to have them know him.—ED.]

The following message of congratulation has been sent by the president of the United States to the U.S. Army aviators on their arrival on the American continent:—

Your history-making flights have been followed with absorbing interest by the people everywhere, and you will be welcomed back to the United States with eagerness and enthusiasm that, I am sure, will compensate you for the hardship you have undergone. Your countrymen are proud of you. Your branch of the Service realises the honour you have won for it. My congratulations and heartiest good wishes to you in this hour of your landing.

The remaining 4,900 miles of their flight is via Mingan, Quebec, Montreal, Keyport, N.J., Washington, Dayton, O., Fort Brook, Neb., Cheyenne, Wyo., Salt Lake City, San Francisco, Los Angeles, and San Diego to Seattle.

Round Australia Again.

On Aug. 7 Lieut.-Col. H. C. Brinsmead, the Controller of Civil Aviation in Australia, accompanied by Capt. Jones, Superintendent of Flying Operations, and Mr. Buchanan, an inspector of Civil Aircraft, left Point Cook, Melbourne, on a D.H.50 (240 h.p. Siddeley Puma) with the intention of flying round Australia in order to inspect prospective air routes.

They reached Darwin, Northern Territory, on Aug. 16; Broome, Western Australia, on Aug. 20; Perth, Western Australia, on Aug. 26; and arrived back at Melbourne on Aug. 29.

In 22 days the machine covered 7,750 miles in 85 flying hours.

The whole flight was absolutely free from trouble and according to *The Times* the total cost of replacements made in the flight amounted to 22 shillings.

This is the second circumnavigation of Australia this year, the first being that of Wing Cdr. S. J. Goble, D.S.O., O.B.E., D.S.C., and Flt. Lt. McIntyre, O.B.E., A.F.C., R.A.A.F., who in April and May flew 9,000 miles round the Coast of Australia on a Fairey IIID seaplane (360 h.p. Rolls-Royce engine).

A Long Mediterranean Flight.

On Aug. 27 an Italian-built Dornier Wal (two 375 h.p. Rolls-Royce Eagle engines) flew from Marina de Pisa to Melilla in North Africa, a distance of 1,000 miles non-stop in 10 hrs. 27 mins. The machine, which is one of a batch being built by the Italian Dornier Co. for the Spanish Navy as heavy bombers, carried a load of 2½ tons on its flight.

A Gold District Air Service.

The following interesting information is taken from an article in the "Canadian Mining Journal" dated May 16:—

The Laurentide Air Service Ltd., 922, Drummond Building, Montreal is inaugurating a flying-boat connection between Angliers at the end of the C.P.R. line and the gold districts of Northern Quebec and Ontario. The Laurentide Air Service has been engaged during the last two years in mapping aerially Northern Ontario for the Provincial Government.

The company's pilots are all ex-service men who have had overseas experience in flying and since the Armistice the pilots have been flying commercial machines. The company expect a large amount of traffic.

The table of services and rates shows that there is a day trip from Angliers to Lake Fortune and Lake Rouyn at a single fare of \$50.00. Each passenger and baggage may weigh 220 lbs., excess weight being charged at express rates.

The machines are flying-boats with Liberty motors and a cruising speed of 70 m.p.h. Five passengers are carried at 1,000 lbs. of freight.

The locality is well provided with lakes and the Laurentide Air Service have provided a quick, safe and efficient means of reaching the goldfields of Quebec.

Hampered Broadcasting.

Sir Sefton Brancker delivered the second of his Civil Aviation talks from 2 L.O. and 5 XX on Saturday evening. The one was vastly more interesting than was the first. Sir Sefton was however handicapped by the British Broadcasting Company Ltd. in not being allowed to mention names of machines or engines.

Apparently the management of the concern is so obtuse that it cannot understand that in speaking of aircraft it is essential if interest is to be maintained that the name and type of each machine and engine should be given. One is never quite understood why the B.B.C. were so reckless as to mention, when recently they broadcast the twitters of a little dicky-bird, that the performer was in fact a nightingale. Surely this was gratuitous advertising of a specific make of bird and gave it too great an advantage over its rivals.

One suggests that Sir Sefton should refuse to broadcast further until someone more intelligent than before arises and slays the present B.B.C. officials and then allow a speaker to speak authoritatively.

The Two-Seater Light Aeroplane Competition.

The following supplementary regulations for the forthcoming Light Aeroplane competitions have been issued by the Royal Aero Club.

Engines:—Subject to Air Navigation Regulations, a complete engine of the same type and manufacture may be changed, or any engine replacement not specified in the schedule will be permitted, at any time during the Competitions. In either of these cases all previous performances of the machines will be cancelled and the Competitor will be required to start afresh. This will not entail the passing of Eliminating Tests a second time.

Any changes or replacements as above must be notified in writing to the Clerk of the Course. Failure to do so will debar the Competitor from taking further part in the Competitions.

Aeroplane Parts:—Repairs of a minor nature, although they may necessitate the replacement of certain detail parts not scheduled in Supplementary Regulations III may be allowed with the previous permission of the Stewards.

Closing of the Competitions:—The Competitions will close at 2.30 p.m. on Saturday, Oct. 4, 1924.

Technical Experience.

One has recently come into touch with an officer lately from the R.A.F. who should be useful to one or other of our aircraft firms. He took a first-class degree in engineering science at Oxford in 1914. During 1915 and part of 1916 he served at Felixstowe and so was able to study the development of flying boats. Later in 1916 he served in H.M.S. *Vindex* and acquired sea-going knowledge. In 1916-17 he was with the Test Flight at Eastchurch under Squadron-Commander Busted, R.N., where he tested the Sopwith triplane and other land-going types.

From April 1917 to the Armistice he was in H.M.S. *Campania* and during 1919 up to his demobilisation in September he commanded the test department at Grain under Wing Cdr. Busted. His scientific training and his experience as a pilot ashore and afloat should make him very valuable in the Aircraft Industry. Any manufacturer who wishes to get in touch with this officer is invited to communicate with the Editor of THE AEROPLANE.

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The Vickers Napier "Vulture" Amphibian.



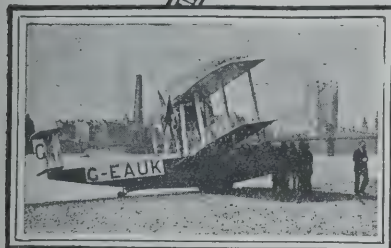
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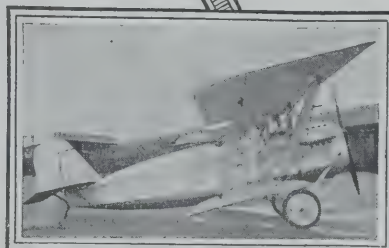
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EXHIBITORS IN THE PALACE OF ENGINEERING, BRITISH EMPIRE EXHIBITION.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

CIVIL AVIATION IN CANADA.

A report on Civil Aviation in 1923 issued by the Department of National Defence, Canada, has just been received. This report contains particulars not only of the flying carried out in Canada by purely civilian undertakings, but of a considerable amount of work done by the Royal Canadian Air Force for other Government Departments.

To those accustomed to European conditions the information contained in this report is of a singularly interesting nature, owing to the very marked difference in the conditions. Considering the figures for Canadian Civil Aviation in the gross they may at first sight seem to indicate the relative insignificance of Civil Aviation in this great Dominion. For the year 1923 the total machine mileage recorded in Canada amounts only to 188,098 as against a little over 1,000,000 miles for Great Britain for 1923/4 and the total number of passengers amounts to 2,238 as against the British total of 15,000. It has to be recollected, however, that in Canada there is only one regular air route—that between Seattle and Victoria, and that this is mainly a mail route operated under contract with the United States Government. Figures for this service are not included in the mileage and passenger totals mentioned above. Canada, with its small population, relatively well served by railways and its severe winter climate does not offer a good field for experimental air lines, and the main development of Civil Aviation has been in connection with forestry, survey work and transportation in remote regions.

FROM JOY-RIDES TO SERIOUS BUSINESS.

Immediately after the war Canada was a field for a very considerable amount of joy-ride activity. The Western Provinces particularly offered excellent ground conditions for exhibition flying and joy-riding, but interest in this form of amusement soon waned, and as a result, in 1921 and 1922 the total amount of flying in Canada showed a decrease as compared with 1920. In 1923 there was an increase in mileage from 1922, despite the fact that the mileage flown by land machines decreased by more than half—from 106,000 to 47,000. On the other hand the seaplane mileage increased from 52,000 in 1922 to 119,168 miles in 1923. The flying by amphibian machines shows a decrease to 21,000 miles in 1923 from 26,000 in 1922. The total change in mileage is from 185,000 miles in 1922 to 188,000 in 1923. It is fairly obvious that this change in the distribution of the total mileage flown is indicative of a great increase in the flying over forested country using rivers and lakes as bases, and it is pretty obvious that flying of this type is practically entirely devoted to serious purposes. In other words the relatively small increase in the total amount of Canadian flying conceals a very marked increase in flying for forest patrol, survey and kindred services of a strictly business nature.

In 1923 the number of firms chiefly engaged in operating aircraft fell from 23 (1922) to 15. One firm is recorded as using aircraft for auxiliary services. The fall in the number of firms concerned is attributed to the dropping out of joy-ride undertakings and it is said that the present survivors are mostly self-supporting and fill an urgent demand which cannot otherwise be met.

ACCIDENTS.

The total number of accidents to civil machines in 1923 was nine as against seven for 1922. Two of the 1923 accidents resulted in the death of two pilots and three passengers. One of these was due to a mechanic—an ex-sergeant-pilot who had not flown since the war—taking out a machine in the absence of the station superintendent and entirely without authority. This resulted in the death of the mechanic and his passenger and loss of the machine. The second accident, resulting in the death of pilot, mechanic, and forest observer, has never been explained. In addition, two pilots, one passenger and one third party were injured in accidents.

Taking into account the nature of the country flown over for the greater part of Canadian flying and the fact that much of this work is carried out on surplus war machines, the casualty rate of 20,900 machine miles per accident in 1923 must be regarded as astonishingly good, and reflects great credit on the staffs of the various firms concerned.

LICENCES.

The number of licensed civil aerodromes and seaplane stations at the end of 1923 was 31, an increase of one from 1922. Of the 31, five aerodromes and two seaplane stations were public property and twelve aerodromes, eleven seaplane stations and one combined station were privately owned. Five aerodromes and two seaplane stations were licensed for Customs.

Sixty-nine civil aircraft held licences during the year. Forty-five of these were land machines, four float seaplanes, nineteen were boat seaplanes and one an amphibian, all single-engined. Machines belonging to the R.C.A.F., although they may have been engaged on civil work, are, of

course, not included in these figures. There were 80 licensed civilian pilots and 216 other licensed personnel.

A brief survey is given of the work of the principal firms engaged in Civil Aviation. These can thus only be mentioned in still briefer form here.

THE LAURENTIDE AIR SERVICE.

The Laurentide Air Services Limited originated from initiative of Mr. Ellwood Wilson of the Laurentide Co., in 1919 obtained a small subsidy from the Government of Quebec and the loan of two H.S. 2L flying boats from the Dominion Government to investigate the value of seaplanes for forest patrol purposes. The Laurentide Company engaged a pilot and mechanics, established a seaplane base at Lac la Tortue and made many flights during the summer of 1919 which firmly demonstrated the soundness of Mr. Wilson's ideas. Forest patrols were continued in 1920 and with great intensity in 1921 and it was then considered advisable to form a separate organisation to handle this class of work. The Laurentide Air Services Ltd. was then incorporated as a separate concern to carry on forest patrol and kindred services under contract not only for the Laurentide Co. but for other interests.

In 1922 a contract was entered into with the Provincial Government of Ontario in connection with the preparation of a map showing the forest types in a part of Northern Ontario. This contract was carried out with such success that a further contract was entered into in early 1923 for all the flying necessary for forest sketching, fire detection and fire fighting in the province.

A contract for forest reconnaissance was entered into with the Spanish Pulp and Paper Mills, who purchased 37 hours' flying time and obtained in return a survey covering approximately 3,000 square miles resulting in a sketch map showing the position of the main waterways, burnt areas, young growth, and the areas of merchantable timber, differentiating in the latter areas between hardwoods, softwoods and mixed growths. The cost of the aerial survey is reported as about one-half cent per acre, as against a minimum of two and a-half cents for ground survey.

Transport work for the Department of Indian Affairs, Northern Ontario, exploration and reconnaissance for the Temiskaming and Northern Ontario Railway Commission, the preliminary location of a railway extension, a reconnaissance of the Manicougan river basin in the province of Quebec were among their other activities of a directly remunerative nature.

Instruction of new pilots, experimental flying in connection with the development of wireless telegraphy for fire patrol and photographic flying were also among the work carried out.

There were in service 12 machines, all but one seaplanes and ten pilots and ten licensed ground engineers. The total flying time was 1,840 hours, 20,000 sq. miles were covered in survey and exploratory work, 550 passengers were carried and flying instruction was given to ten pupils. No person was injured in these operations.

In the autumn of 1923 the firm transpired their main base from Lac la Tortue to Three Rivers, Quebec, with greater room for increased fleets is available and increased facilities for repair and overhaul. In addition the water at Three Rivers is clear of ice at a considerably earlier date than is the case at the original base.

THE FAIRCHILD AERIAL SURVEYS CO.

The Fairchild Aerial Surveys Company (of Canada) Limited, which is associated with the Fairchild Aerial Camera Corporation, of New York, is a second concern which owes its formation to the initiative of Mr. Ellwood Wilson who has recognised the value of aerial photographic survey for forestry purposes. This company was formed in 1922 with no intention of owning or operating its own aircraft, but to concentrate on the purely photographic work involving the necessary flying being carried out under contract with other commercial aviation companies. There was found to be a scarcity of machines possessing a sufficiently high ceiling for the most advantageous use of photographic methods and a very great pressure of other work on such machines as were suitable and the company was obliged to purchase two machines of its own.

During 1923 their work embraced the preparation of mosaics for forestry, engineering, and town-planning purposes. A total of 510 square miles was covered by vertical photography in 98 hours of flying, and in addition a great deal of oblique photography was carried out. As a result of the 1923 work, contracts were secured for 1924 which necessitated the purchase of two more aircraft. Among the contracts are included those for a mosaic of 3,000 sq. miles of timber land and for location survey for 65 miles of railway.

DUMBARTON.

THE WINNING PILOT'S

OPINION OF THE "PUMA".

LEITH.



THE DE HAVILLAND AIRCRAFT CO LTD
STAG LANE AERODROME EDGWARE MIDDLESEX
CONTRACTORS TO THE AIR MINISTRY



Director
Aircraft Design and
Construction
Director
Aircraft Maintenance
Director
Aircraft Operations
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Aircraft Supply
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Aircraft Research
Director
Aircraft Development

21st August, 1924.
Ref. AJC/WL.

Messrs. AIRCRAFT DISPOSAL CO. LTD.
Regent House,
Kingsway, W.C.2.

Dear Sirs,

Having been successful in winning the KING'S CUP AIR RACE for 1924 on a D.H.50, fitted with a 240 H.P. SIDDELEY 'PUMA' Engine, I feel I must write to express my appreciation of the PUMA Engine as supplied by you. Throughout this race of 1,000 miles flown at an average height of about 100 feet, I ran the PUMA at full throttle, getting 1,500 revs. for nearly 9 hours flying.

Nearly all my big flights in connection with the DE HAVILLAND HIRE SERVICE, such as -
My 12,000 Mile Tour, in which I flew 130 hours without overhaul, in mostly Tropical Climates.
My Flight from Belgrade to London in a day.
From Rome to London in one day.
Again from Madrid to London through Europe and North Africa.
An 8,000 mile Tour through Europe and North Africa.
Winning the £1,000 prize at the International Competition at Gothenburg last year and
Over 2,000 hours flying for the last 3 years in connection with THE DE HAVILLAND AIRCRAFT COMPANY - have been done on SIDDELEY 'PUMA' Engines.

I think the PUMA continues to hold its own as the best commercial engine, owing to its reliability, accessibility and endurance.

In conclusion I wish to state that the PUMA will stand a lot of hard punishment, and will respond to kind treatment and throttling down, by giving continual good running.

Yours very faithfully,

Alan J. Cobham

CHIEF PILOT, FOR THE DE HAVILLAND AIRCRAFT CO. LTD.

THE DE HAVILLAND 50 MACHINE
(PILOT MR A.J. COBHAM) WHICH WON
THE KING'S CUP RACE
- 1924 -

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"Airdrop," London.

THE DOMINION AERIAL EXPLORATION CO.

The Dominion Aerial Exploration Company was formed in 1922 with Capt. H. S. Quigley, M.C., D.C.M., as president and chief pilot. Capt. Quigley had been chief pilot to Price Bros. Ltd., of Quebec, and the new firm undertook forest flying for Price Bros. under contract in 1923. A sketch survey of 4,300 miles was made from the air, fire patrols were carried out, leading to over 200 reports on forest fires, and photographs showing the position, the timber involved, the rate of progress and the damage done, were supplied. The Martinsyde seaplane in use was wrecked by the foolhardy action of a mechanic (already mentioned) in July.

The same firm under contract with the Government of Quebec carried out forest mapping and sketching and fire patrol work from Roberval, on Lake St. John, using H.S.2L. boats lent to the Quebec Government by the Department of National Defence. A total of over 20,000 square miles was explored in a total of 175 hours 20 minutes flying. The company were again the victim of a serious and unexplained accident which led to the death of pilot, mechanic and observer.

All told the firm flew approximately 19,140 miles in 1922, carried 15,300 lbs. of goods and covered 24,300 square miles by aerial reconnaissance.

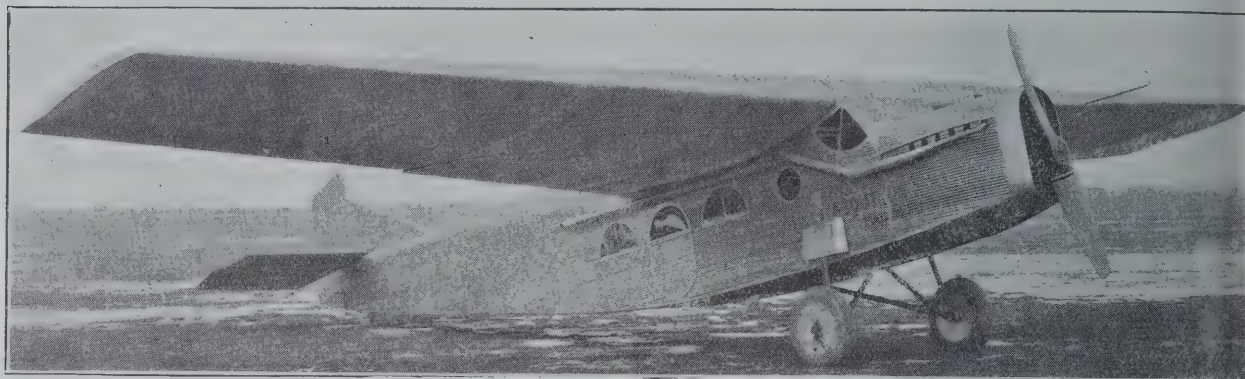
The Ontario Pulp and Paper Co. in 1923 purchased H.S.2L. flying boat and engaged a pilot, and mechanic for their private purposes. This enterprise resulted from a visit in August, 1922, of an ex-officer of the R.A.F. who flew to the United States into Canada and proceeded to Franco Bay where the company owned large timber rights. The visitor demonstrated to the firm's satisfaction the value of aircraft in forestry work.

In 1923 the firm's boat was employed in the transport of men, supplies and mails to exploring parties, in reconnaissance over about 6,000 sq. miles and in photographing water-power sites. 144 hours' flying was accomplished in 1923: 100 hours in freight and mail transport (carrying 17,600 lb. freight) and 32 hours in passenger transport (35 passengers).

The other companies operating are said to have employed aircraft mainly in exhibition flying, instruction, and short passenger work.

(To be continued.)

A NEW STOUT PASSENGER CARRIER.



The Stout All-metal Pullman (400 h.p. Liberty).

The Stout Metal Aeroplane Company of Detroit, Michigan, U.S.A., which has been experimenting with all-metal monoplanes since before the armistice, has recently produced the seven-passenger duralumin monoplane illustrated herewith.

The machine is a high-wing cantilever monoplane, reminiscent of the Fokker F type in general arrangement, entirely covered with Junkers-type corrugated sheet duralumin. It is said that the actual structure is of an entirely original type, but no details on this subject are vouchsafed.

The engine—a Liberty with the most recent improvements, including heavy timing gears and an improved intake manifold—is installed with a view to the maximum of accessibility. The fuel system is of the simplest, consisting of two 75-gallon tanks in the wings, each six feet out from the centre line, with a gravity feed. A Bijur self-starter is fitted.

Side by side seats for pilots with complete dual control are arranged under the leading edge of the wing, the underside of the wing being cut away as in Fokker practice to give head room. To reduce the ill effect on the wing of this excision a sloping wind-screen is fixed to fill the gap between fuselage and leading edge. Openable windows are fitted at the sides of the cockpits.

Behind the pilot's seat is a lavatory, with a baggage room overhead in the wings. Behind this is the passengers' cabin, which has six seats. The two rear pairs of seats may be folded so as to form side-benches facing each other, and there is then room for a table between on which meals may be served, or games played. At the rear of the cabin is a

small pantry which can be used as a food store on long trips.

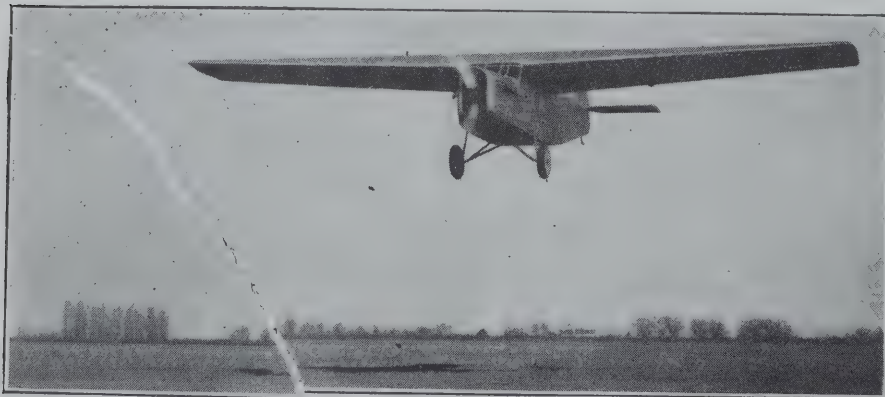
The wing is of a thick biconvex section tapered both in thickness and in chord from centre line to tips. It is supported in one centre section and two detachable extensions. There are apparently three main spars to the wings.

The tail unit is of normal type, the rudder alone being balanced. The tail plane is adjustable. It is noticeable that the tail of this machine is carried out at a normal distance behind the wing unlike the earlier Stout monoplanes which were noticeably short in the tail.

The undercarriage consists of two "V" member struts hinged to the underside of the fuselage near the centre line, and of a nearly vertical telescopic leg running up the side of the fuselage. The shock-absorbers on this undercarriage are enclosed in a streamline case, and are arranged to give 12 inches of travel. The landing wheels are of 36 inch diameter, fitted with eight-inch tyres.

No detailed specification of the machine is available, but it is gathered that the machine is of approximately 58 ft. span and 45 ft. long. The weight empty is said to be 2,379 lbs.—which probably includes fuel, oil and pilot. The top speed is given as 116 m.p.h., and the climb to 5,000 ft. takes 12 minutes.

The wing loading is said to be about nine lbs. per sq. foot and the power loading about 14 lbs./h.p., from which it may be deduced that the total weight loaded is approximately 6,000 lbs. and the wing area about 550 square feet.



It appears that the Stout Company do not propose to offer these machines in general sale, but that they have developed the type with the intention of supplying them to associated concerns for the operation of passenger and goods services. A factory capable of producing one machine per week is now under course of construction, and it is announced that plans for inter-city and cross-country services from Selfridge Field, Detroit, are in course of preparation, and that an announcement of the proposed services will shortly be made.

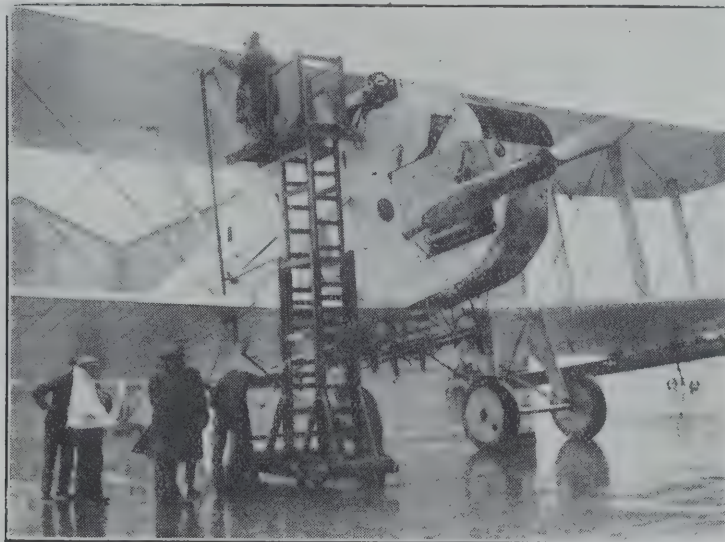
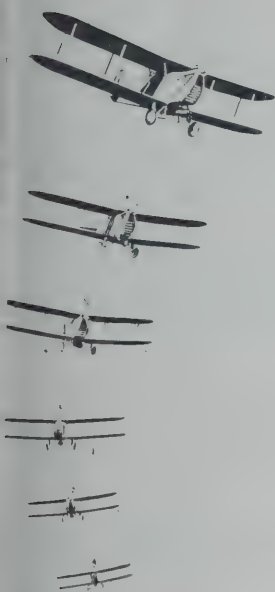
The Stout Pullman in the Air.

Blackburn

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Blackburn Cubaroo fitted with 1,000 h.p. Napier Engine.
"The big machine seemed to handle on the ground as easily as does the ordinary taxiplane . . . Although she was carrying 3,500 lbs. weight of petrol and was loaded to half her full war capacity, the CUBAROO got off long before she was half across the aerodrome. She seemed to take her turns and banks quite comfortably and does not appear to have any nasty tricks at all. The landing of the CUBAROO was as good as her take-off."—See THE AEROPLANE, August 27th.
THE BLACKBURN AEROPLANE AND MOTOR CO., LTD.,
OLYMPIA, LEEDS. Telephone : 601 Roundhay.

Telegrams : "Propellers, Leeds."

ESTABLISHED 1912.

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AND NAVAL AMPHIBIAN FLYING BOATS.

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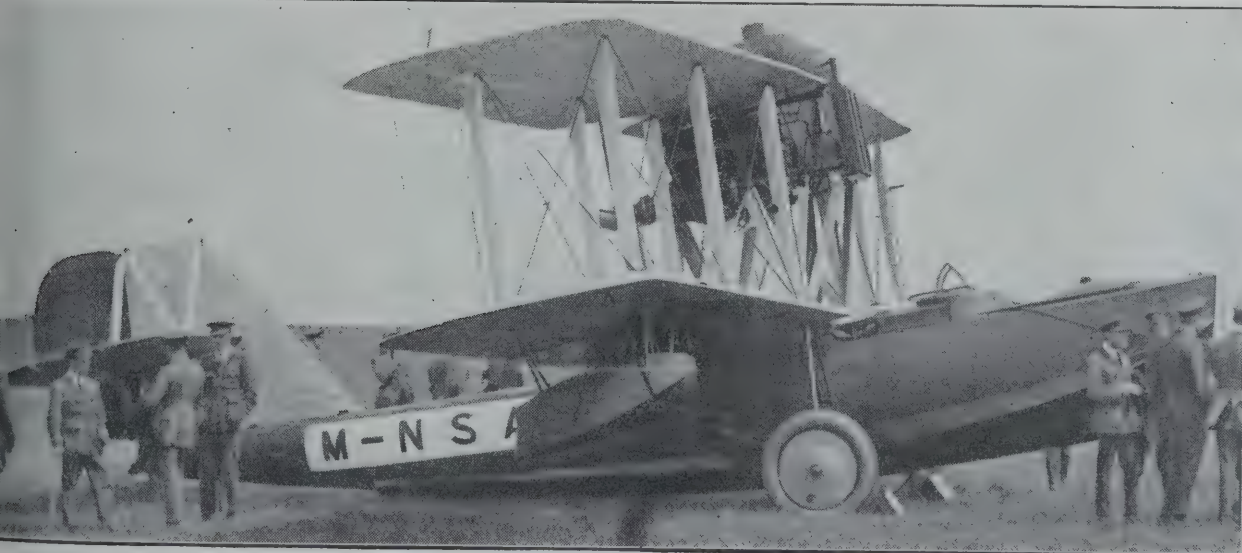
H.M. ADMIRALTY, H.M. AIR MINISTRY, THE IMPERIAL JAPANESE NAVY,
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THE SPANISH ROYAL NAVAL AIR SERVICE, THE CHILIAN NAVY,
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SOUTHAMPTON, LONDON.



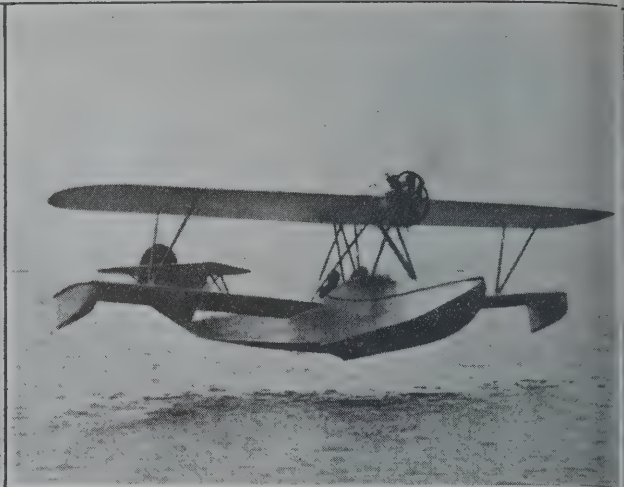
DESIGNERS AND CONSTRUCTORS OF

Supermarine Bomber Amphibian Flying Boat

ROLLS-ROYCE
EAGLE IV.
ENGINE.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROMARINE E.O. SEAPLANE.



"Just on" and "Just off." The Aeromarine E.O. flying boat on test.

This little machine—illustrated a short while back in a partially completed state—was designed and built to the order of Mr. Earl Osborn, of New York, to replace an older Aeromarine flying boat in that gentleman's possession. The attributes particularly required of the machine were that it was to be economical in regard to fuel, oil and maintenance generally, was to be safe and simple to fly, to be as far as possible indifferent in regard to trim, whatever the load carried, and whether the engine was off or on.

There being no American air-cooled engine of low power but of more than three cylinders, the Anzani type 6.AB., a six-cylinder nominally of 70/80 h.p., is fitted. The installation and mounting were so designed as to permit the fitting of any radial or rotary engine of approximately the same power as an alternative. A tractor airscrew was decided upon, allowing the placing of the crew well back in the boat, where they are less liable to be hurt in a crash and where they will have a free exit towards the tail.

Also the crew can be located about the C.G. in the tractor type and changes in the crew load have less effect on the trim of the machine. Further with a pusher airscrew the slipstream tends to straighten out the downwash from the wings. In a flying boat with a high engine the greater variation in downwash helps to reduce the change of trim caused by changes in airscrew thrust consequent upon changes in engine output.

The machine is a biplane having an upper wing of greater span and of considerably greater chord than that of the lower wing, and with a very pronounced stagger. The upper wing is built in two parts, on two spruce I beams with spruce ribs and drag struts, and is attached to a centre section which is also an engine mounting and fuel-tank container.

The lower wing is built on a single spruce and three-ply

box spar attached to a steel tube passing right through the hull. The two wings are united by a pair of V struts each side and are braced by cables. The fittings at the wing-roots and at the interplane struts are so arranged that the incidence of the lower wing can be varied easily; this wing is appreciably behind the G.C. of the machine, and adjustment may be used to trim the machine fore and aft as well as to apply a correction for airscrew torque.

The hull, which has a very large reserve of buoyancy, follows in its main design that of the larger A.M.C. machine which has recently been described. Like its larger sister it is built entirely of 17S alloy—an American equivalent of duralumin. An unusually sharp V bottom has been provided, the keel aft of the step is swept up at a fairly large angle.

This centre section nacelle which is roughly a polyhedral streamline body is also entirely built of 17S alloy. The front end is formed by a sheet 5/32 inch thick to which the engine is bolted. Behind is a combined oil and petrol tank, the oil tank between the engine and the petrol. The petrol tank, of 25 gallons total capacity, is divided into two sections—one a service section and the other a reserve. Short, flexible piping couples the tanks to the carburettor, and the petcocks can be reached from the pilot's seat. A pulsometer gauge and a revolution indicator are mounted on the right side of the structure in full view of the cockpit, and a throttle control and a magneto switch have to be carried down to the cockpit.

Three seats, the pilot's somewhat in front and the two side by side, are arranged in the cockpit. Tests of the machine were started on June 23, 1924, and the machine once showed itself to be in perfect balance, both lightly loaded, at full throttle, or on the glide. The take-off was excellent and little affected by the load carried.

SPECIFICATION.

Span (top)	38 ft. (11.58 m.)
Span (bottom)	34 ft. (10.36 m.)
Chord (top)	5 ft. (1.52 m.)
Chord (bottom)	3 ft. (.91 m.)
Stagger	3 ft. (.91 m.)
Length overall ...	25 ft. 2 in. (7.67 m.)
Wing area (top) ...	177 sq. ft. (15.41 sq. m.)
Wing area (bottom)	89 sq. ft. (8.21 sq. m.)

Total area	266 sq. ft. (23.62 sq. m.)
Weight empty	1,040 lbs. (473.5 kg.)
Max. disposable load :—	

Pilot and two passengers ... 510 lbs. (231.2 kg.)

Anchor 20 lbs. (9.07 kg.) |

Petrol 150 lbs. (68.0 kg.) |

Oil 30 lbs. (13.7 kg.) |

Total 710 lbs. (322.2 kg.) |

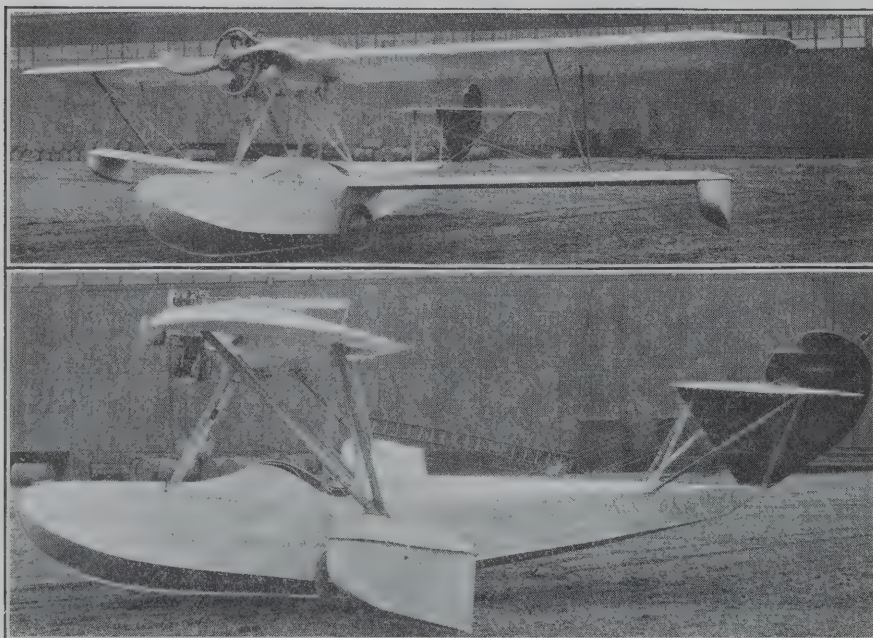
Loaded weight 1,750 lbs. (796.8 kg.) |

Engine Anzani 70/80 h.p. |

Wing loading 6.58 lbs./sq. ft. (33.6 kg./sq. m.) |

Power loading (75 h.p.) ... 23.3 lbs./h.p. (10.6 kg./h.p.) |

Maximum speed (1,500 lbs. weight) 73.5 m.p.h. (118 k.m.p.h.) |



Two views of the Aeromarine E.O.

The Premier Flying Event of the Year

The Round Britain Race (August 12)

for the

King's Cup

won

by Mr. A. J. Cobham flying a de Havilland 50 machine with Siddeley "Puma" engine

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That Mr. Cobham should have selected "BP" for this thousand mile flight in which success depended above all on speed and reliability, affords further striking proof of

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

COMMERCIAL AERONAUTICS. The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 25; Tuesday, 23; Wednesday, 25; Thursday, 26; Friday, 17; Saturday, 15; Sunday, 6.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 84, passengers 433, freight 23 tons.

AIR UNION:

Paris—London: Machines 31, passengers 168, freight —.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 13, passengers 54

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 5, passengers 7.

DE HAVILLAND HIRE:

Machines 2, passengers 6.

SURREY FLYING SERVICES:

Machines 2, passengers 1.

Total number of trips by British machines: 88, carrying 440 passengers. Foreign machines: 49, carrying 229 passengers.

Comparative Figures:

For week ending Aug. 31:

Machines, 137; Passengers, 669; Crews, 165; Total personnel, 834

Corresponding week, 1923:

Machines, 121; Passengers, 578; Crews, 194; Total personnel, 772

Corresponding week, 1922:

Machines, 159; Passengers, 506; Crews, 272; Total personnel, 778.

Corresponding week, 1921:

Machines, 103; Passengers, 427; Crews, 129; Total personnel, 556.

Corresponding week, 1920:

Machines, 104; Passengers, 219; Crews, 129; Total personnel, 348.

Croydon Notes.

The weather during the past week or so has been as bad on the air lines as it has been anywhere else, nevertheless, the regularity of the running of Imperial Airways Ltd. has not been affected much.

The great question which has to be faced at the moment by the Board of Imperial Airways Ltd. is "To extend or not to extend," much in the same way as in April the great question was "To be or not to be." The service is at present very short of machines and those that it has got are all over two years old, and some more than four. The most modern machine they have is the Bristol and as this only carries about 800 lbs. paying load against the D.H.34's 1,750 lbs., and this can hardly be considered efficient as a modern air liner, which is hard luck on the Bristol Company, who have been working for a long time to make this type of machine a success. Consequently it is now used as a freighter.

The result of this shortage of flying stock is that now that the London-Paris and London-Cologne services are paying, the company naturally desire to run a more frequent service on this route. But if they do this they will not have any machines with which to operate the extension of the present routes which they contracted to run in their agreement with the Government and so they are rather left in the lurch, or perhaps one should say "in the freight machine" to be more up-to-date.

On Friday afternoon M. Sayaret of the Air Union was flying to Paris on Spad F-ADBH and when some distance out over the Channel his engine quit work. He turned round and tried to make the English coast but alighted in the sea about a mile off Folkestone Harbour. He was picked up shortly afterwards by a rowing boat, by which time he was somewhat exhausted. Fortunately there were no passengers in the machine.

The big Fokker F.7 is being withdrawn from the K.L.M. service to be prepared for its forthcoming flight to the Dutch East Indies on which Mr. Van de Hoop will be the pilot.

This will be the most ambitious flight yet attempted on a purely commercial machine.

Mr. Perry has been making further tests for the Air Disposal Company Ltd. with the special Renault-Avro. On Friday and Saturday he was testing D.H.9 G-EBJW which is one of the machines for Mr. Greig's Belfast-Carlisle Service.

To Harold.

[Ode to Harold the Hearty, known as the London Terminal Nightingale, remonstrating with him upon his continuing muteness.]

Harold!

Where art thou?

Now,

For ages past

Thou hast

Not trod

Our sod

Nor our sword.

Art bored

Or what

Has got

Thy goat?

From thy tremendous throat

No note

Has struck our ears

For years,

Oh Harold, how

Can'st thou

Neglect us so,

You know,

Bo,

We miss thy yell

Like hell;

Open thy jaw

Once more,

Expand that jowl

And howl,

So that our ears

Drip tears,

And, at thy cries

Our eyes

Pop from their sockets

Like rockets.

Come now, Harold,

Thou hast not carolled

For so long

That a swan song

From thee

Would be

Greatly appreciated

(in spite of the anguish)

by all well-wishers at the London Terminal Aerodrome.

PERSONAL NOTICES.

DEATHS.

HARCOURT-VERNON.—At Lavant, Hants, on Aug. 26, as the result of a flying accident on manoeuvres, John William Carl Harcourt Vernon, Flg. Off. R.A.F. and Lt. Northumberland Fusiliers, aged 24. The accident occurred while taking photographs from a Bristol Fighter engaged in manoeuvres with the 4th (Guards) Brigade. The inquest it was stated that the machine was flying low and at flying speed.

Mr. Harcourt-Vernon was seconded to the R.A.F. from his regiment in Dec. 1922, and posted to Duxford. On June 2 of this year he was posted to No. 13 (Army Co-operation) Sqdn. He was a keen athlete and won the Air Force Championships at Uxbridge in June for Putting the Shot (34 ft. 1 in.) and Throwing the Javelin (174 ft. 7 in.). He was also a forward in the Duxford Rugby Football team who were runners-up for the King's Cup, 1923-24.

CARPENTER.—At Lavant, Hants, on Aug. 26, as the result of a flying accident, AC.1 Charles Carpenter, R.A.F., of Brockley, aged 24. AC.1 Carpenter was the observer in the machine which crashed at Lavant.

MASON.—On Aug. 28, at Duxford, Cambs, as the result of a flying accident, Stanley James Mason, Flg. Off. No. 19 (Fighter) Sqdn. R.A.F. Mr. Mason was flying a Snipe in the neighbourhood of Duxford Aerodrome and the cause of the accident is obscure.

FORTHCOMING MARRIAGES.

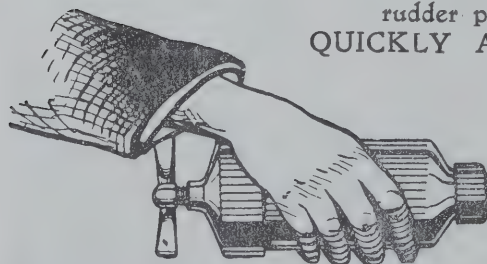
BIRD-BAILEY.—The engagement is announced between Geoffrey Armitage Bird, late R.N.A.S., younger son of Mr. and Mrs. Frank Bird, Cotswold, Winchcombe, Glos., and Noreen Phyllis, youngest daughter of Mr. and Mrs. Graham Bailey, Glaslyn, Herbert P. Dublin.

KNOWLES-INMAN.—The marriage arranged between Sq. Ldr. R. Knowles and Miss Gladys Inman will take place very quietly at Christ Church, Hampstead, on Oct. 1, at 12 o'clock.

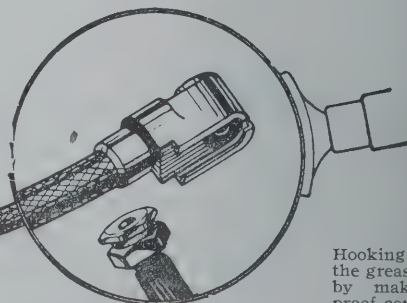
SAMSON-REEVES.—A marriage has been arranged, and will take place in October, between Air Commodore C. R. Samson, C.M.D.S.O., A.F.C., R.A.F. and Freda, eldest daughter of Mr. and Mrs. Herbert K. Reeves, The Mansion, Leatherhead.

HIGH PRESSURE LUBRICATION.

Grease your undercarriage, controls,
rudder post, ailerons, etc.
QUICKLY AND EFFICIENTLY
with



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grease cups.



Hooking the nozzle
the grease plug, then
by making a
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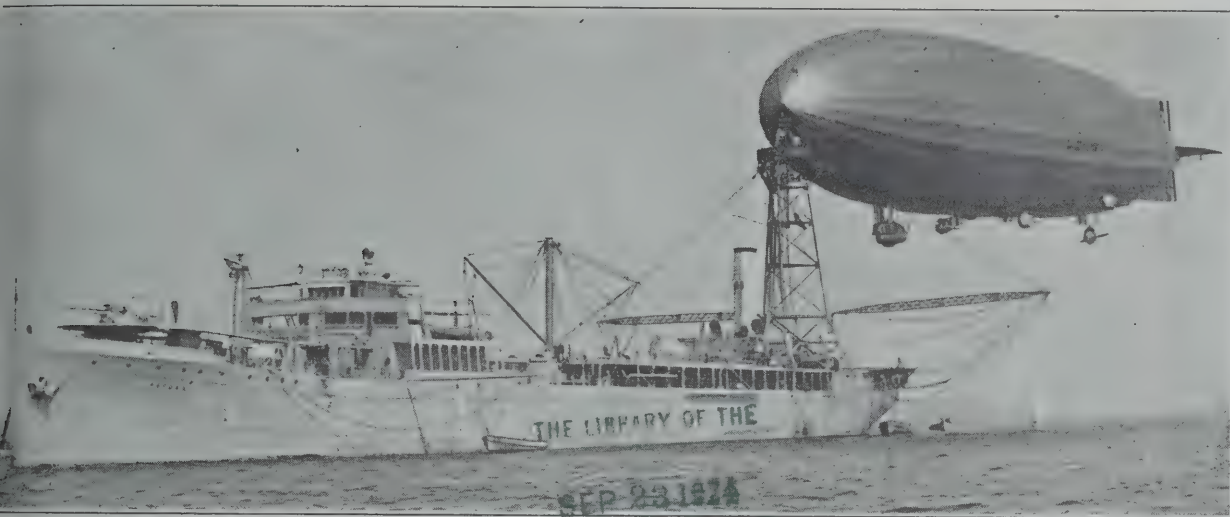
Edited by R. G. Gray

Vol. XXVII. No. 11.

SIXPENCE WEEKLY.

Registered at the G.P.O.
as a Newspaper.

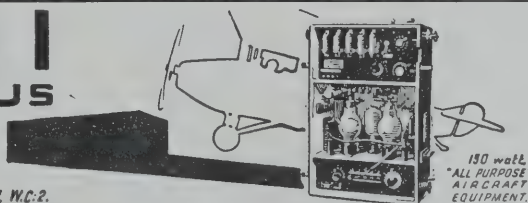
"THOU WERT BUT A LOST MONSTER."—THE TEMPEST.



HANGING OUT:—The U.S. Airship Shenandoah riding at anchor from the mooring mast erected on the U.S. Steamship Patoka. The experiment showed that though the airship swung round the full 360 degrees she never even threatened to foul the top-hamper of the steamship. It will be remembered that when she tore away from her mooring mast at Lakehurst in a tempest the monster was very nearly lost.

MARCONI WIRELESS APPARATUS

Is the standard equipment for British aeroplanes flying regularly on Cross-Channel air routes.



150 watt.
"ALL PURPOSE"
AIRCRAFT
EQUIPMENT.

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THE ORIGINAL NON-POISONOUS

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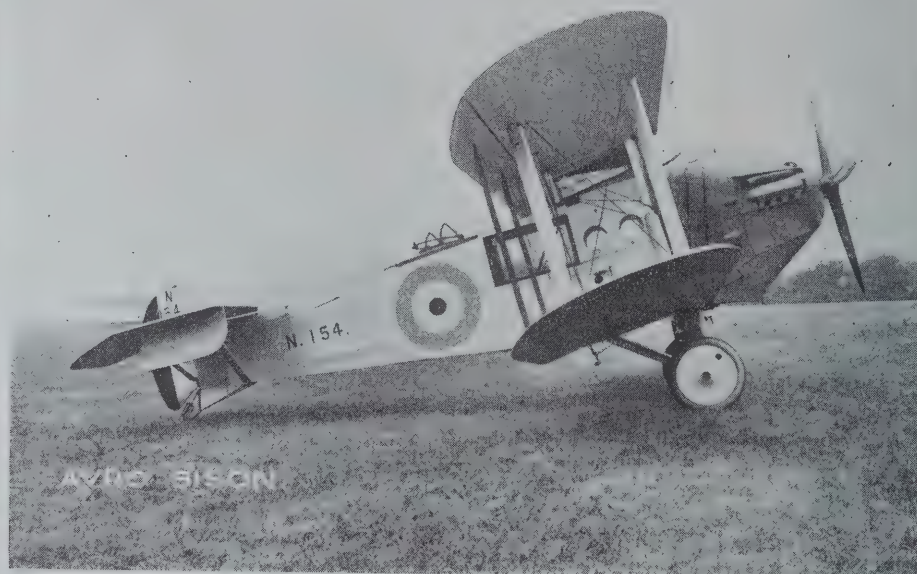
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AEROPLANES
- AND -
SEAPLANES

The AVRO BISON

THE illustration shows the AVRO BISON, a Fleet Gunnery Spotter, specially built for the British Air Ministry. This machine is equipped for taking off and alighting on a ship's deck.

The AVRO BISON is only one example from the wide range of new and successful designs produced by A. V. Roe & Co., Ltd. Other examples will be shown from time to time in AVRO advertisements in this journal.

Meanwhile enquiries either for specially designed machines or for AVRO Standard machines are invited.

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Incorporating
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Telegraphic Address: "Aileron, London." Telephone: Gerrard 5407.
Accounts, and all correspondence relating to Publishing and Advertising, should be sent to the Registered Offices of The Aeroplane and General Publishing Co., Ltd., 14, Bream's Buildings, E.C.4. Telephone: Holborn 426.
Subscription Rates, post free: Home, 3 months, 8s.; 6 months, 16s.; 12 months, 32s. Foreign 3 months, 8s. 9d.; 6 months, 17s. 6d.; 12 months, 35s. Canada, 1 Year, \$3. U.S.A., 1 Year, \$8 50c.

ON R.A.F. ACCIDENTS AGAIN.

Those who are responsible for the effectiveness as well as comfort of the Royal Air Force may at any rate console themselves for the recent ill-informed attacks on the administration of the Service with the idea that all this fooling in the daily press does at any rate indicate that the Public, as represented by the newspapers which it reads, does at any rate take a very lively interest in our Line of Defence. It is a fact that if the Air Force badly administered and badly equipped it would be of use for offensive or defensive purposes.

Those who are now in the Air Force know that it is very much better in every way than is any other air force in the world and that everything possible is being done to make improvements as are necessary. Therefore the newspaper agitation is not likely to affect the moral of the R.A.F. to any extent. Some of the agitation is obviously political, and it is merely the outpouring of disgruntled officers and men, but behind it all there is a quite honest desire on the part of the newspapers that the R.A.F. shall be as nearly perfect as is humanly possible. Therefore the fuss in the newspapers is all to the good and may be made in fact quite a useful lever for the Air Ministry and for the Air Council extracting more money from the Treasury by way of Parliamentary Votes when the time comes to present the Air Estimates.

That being so one may with a comparatively light heart read the various newspapers which have done their little to stir up the idea that the R.A.F. is in urgent need of reform.

ILLIBERAL LIBERALS.

Most of all one will attend to the *Star*, a well-known Liberal newspaper which is always singularly illiberal when the question of spending money on the Fighting Services is being considered and is always among the first to cry out when the consequence of lack of money there is trouble in these Services.

In a comparatively recent issue the *Star* inquired in large letters, "WHAT IS WRONG WITH THE R.A.F.?" And it proceeded to argue from sundry letters from officers and men in the Air Force that, "there seems little doubt that the root of the trouble is the fact that aircraftmen are being called on to do too much army drill and that not sufficient attention is being devoted to technical instruction for which they have joined the force." From that the *Star* argues "that the mind and supervision is slack and crashes follow."

Now anybody who has taken any interest in the individual accidents which have occurred during the past few months, or even anybody who has taken the trouble to read the reports of inquests on fatal flying accidents, knows perfectly well that there has not been a single fatal accident which has been traced definitely to anything wrong with the maintenance of the machine. As one pointed out in *THE AEROPLANE* last week a certain number of purely experimental machines or reconditioned machines have broken in the air but the air mechanics of the R.A.F. have had nothing to do with the state of such machines.

Likewise collisions in the air have nothing to do with what the *Star* calls "ground supervision." And certainly that worst class of accidents those caused by mistakes on the part of the pilot cannot be said to be due to mechanical failure.

Therefore it may be taken that mechanics in the Air Force are actually employed in maintaining machines which fly down regularly are very competent men at their jobs.

MECHANICS AND DRILL.

It is certainly worth while to discuss to some extent the question of drilling air mechanics for it is one which concerns the whole Air Force and is of much greater importance than careless thinkers may imagine. The *Star* publishes various extracts from letters written by aircraftmen in which occur such phrases as:—
"How many skilled mechanics last year after passing all examina-

tions refused to sign on when arriving at the R.A.F. Depot at Uxbridge because of the drill. I believe over 2,000 of them preferred to pay their return fare home rather than continue in the force.

Kenley where they have no drill holds the record (24 Squadron's) for the number of hours flown in the air. They have had no serious accidents.

Now we have had rifles issued to us and are to be drilled at 7.45 daily as there is one of the heads coming to inspect us on Sept. 11. You ought to hear the remarks of the mechanics.

Another writes,—

They try to make you both a soldier and a technical man but the troops won't have that. They want to be either one or the other. What the troops want is work in their workshops not on the barrack square and all this sergeant-majorism.

And an Aircraft Apprentice at Halton writes,—

There are about 2,000 aircraft apprentices under training here, at some great expense to the public. These boys are intended for future aircraftmen in the skilled trades of the R.F.A. yet the outstanding feature of their life is military drill and discipline.

Now the writers of these letters are either Bolsheviks or fools. They may have been stirred up by Communists to make trouble in the ranks or they may be simply extraordinarily unintelligent. As the skilled mechanic is generally quite an intelligent person one can only assume that being stupid they must be consequently very poor mechanics and that therefore the Air Force would be very much better without them in any case.

THE REASON FOR SOLDIERING.

For the benefit of those who are not quite so stupid and therefore may in time become useful mechanics one would like to point out that there are very good reasons why on joining the Air Force a man should learn his drill before he learns to be a mechanic. Anyhow, by the time he has completed his training he should be both a soldier and a technical man.

The first reason is that it is as necessary for the men of a fighting Service to be smart as it is for their machines to be smart. Every man is a part of the mechanism of the Force and he should fall into his place as automatically as does each tooth of a train of gears, and his movements should be just as smooth as those same teeth.

Surely it is obvious that when the men of an R.A.F. unit move from place to place they should move in decent order and not merely as a disorderly mob. A very highly-trained intelligence is not necessary to understand that if a draft of men, say 25 or 30 in number, are moving from the Depot at Uxbridge to an R.A.F. station somewhere in the country they will move with greater comfort to themselves and with still greater convenience to the civilian public, and will get in and out of trains and railway stations and so forth more quickly, if they parade and march and manoeuvre in a smart and soldierly manner according to the drill-book than if they simply moved about higgledy-piggledy, falling over one another like ordinary railway passengers on a Bank Holiday. Every movement of masses of men, even in quite small numbers, is made much more smoothly and quickly as the result of training on the drill-ground. That alone is sufficient reason for the ordinary drill on the square which the aircraftman gets at the Depot.

Apart from which a smartly drilled body of men in R.A.F. uniform earns the admiration of civilians and gives the Public confidence in the competence of the Air Force. A mob of sloppily dressed mechanics would only bring contempt on themselves.

THE FIGHTING AIRMAN.

The second reason for making the aircraftman a soldier is even more important. The aircraftman serving overseas frequently finds himself in hostile country. A couple of dozen mechanics may be taken by a troop-transport aeroplane to repair a machine which has come down in the desert in Iraq or in the Soudan. Or a body of them may be sent up into the hills on the Indian Frontier to save the engine of a crashed machine. These small detachments may quite well find themselves forced to fight tribal raiders to save their own lives. In any case they may have to camp out for a

few days and to protect their camps against local robbers they must certainly know how to handle a rifle and to mount a guard.

In time of war, especially in such an intensely mobile war as we may expect in the next international argument, aircraftmen on advanced landing grounds will very often find themselves cut off by mobile enemy troops and forced to fight as infantry in defence. Therefore it is necessary for the safety of the men themselves in the Service which they have chosen that they should be fighting soldiers as well as mere mechanics.

The aircraftman with a spanner in his hand would find himself considerably at a disadvantage if attacked by a Pathan with a useful knife, but with a rifle which he knows how to use he could make sure that the knife would not be used.

One hopes that those Aircraftmen and Aircraft Apprentices who read THE AEROPLANE will use these arguments effectively

in converting their Bolshevistically inclined messmates. One hopes that the N.C.O.'s of the R.A.F. will take it upon themselves to deliver short sermons on this subject to the men under their command.

Furthermore one hopes that those junior Officers of the R.A.F. who are told off from time to time to deliver lectures to the Other Ranks will think over the points which has mentioned and will, out of their own bright young intelligences, expand these arguments to their full capacity and will particularly import into their discourses examples as come within their knowledge of the country in which they happen to be serving.

If they will do so one believes that we shall soon no more about those foolish objections to mechanics being taught to conduct themselves in a smart and soldierly manner and to defend themselves in time of danger.

(To be continued.)

The Schneider Trophy Race.

Mr. Hubert Broad, who will fly the Gloucestershire Aircraft Company's racer in the Schneider Trophy race, left London for Felixstowe on Monday to test the machine. It had been intended to fly the machine at Lee-on-Solent, but for various reasons Felixstowe was eventually selected.

The power-plant is a Napier Lion engine which has developed on test 633 h.p. at something and under 2,400 r.p.m. This drives an all-metal Fairey-Reed airscrew.

The machine is a biplane of very clean lines with strut-type Lamblin radiators on the under-carriage. The top plane is flat, but there is a dihedral angle to the lower plane.

The floats have been built by May, Harden and May, Ltd. and have one step.

The engine is started by an extraneous temporarily-attached gas starter which is removed when once the engine is running.

It is expected that the machine will undergo its tests on Thursday afternoon, after which there will be a timed flight over the speed course and various covering tests. If all is satisfactory she will leave as soon afterwards as possible for the States, so as to give the pilots some opportunity of practising over the course. The American pilots have been flying there for some weeks.

Sq. Ldr. Rea will go as spare pilot for the machine.

More Views on the Royal Aero Club.

Another correspondent writes:—

"I must add my growl to that of your correspondent in THE AEROPLANE on the subject of Royal Aero Club Associateship. When the Associateship scheme was first mooted an impressive array of attractions was set forth and at least one guileless fool scraped up a guinea (with difficulty) and even crowned it by repeating the process this year. But, with the exception of last year's Derby and that amusing 'motor-glider' affair at Hendon, impecunious London 'daily-breaders' have had devil a scrap for their money.

"When the R.Ae.C. folk do manage to get up any sort of show, the genial and hospitable owners of the delectable palaces of Lympne and thereabouts invariably entice these dear jovial boys away into the wilderness—or else in a sudden fit of violent mania they hide their entertainment altogether, as in this year's King's Cup.

"All of which is very amusing and what not, but scarcely worthy of the body charged with the government of the Sport of Flying, in the country which should be the World's headquarters thereof.

"Light planes are coming on and great days of development are ahead. Oh! for someone with brains and enterprise to tackle the R.Ae.C. Times are bad of course, but would Gates and the old Hendon crowd have let the sport down like this?"

Amsterdam-Bordeaux Non-Stop.

An unusually fine flight was made recently by Captain Saccadura Cabral, the famous Portuguese Naval aviator, who in 1922 flew from Lisbon to Rio de Janeiro on Fairey seaplanes with Rolls-Royce engines.

He left the Schiphol Aerodrome at Amsterdam on Aug. 26 at 5.30 a.m. on a Fokker monoplane with a Rolls-Royce engine of the latest type, the Eagle IX, carrying with him a mechanic and a quantity of baggage and spare parts. He landed at Bordeaux after a non-stop flight of nearly nine hours against a strong head wind and very bad weather the whole way.

This is the first time the Amsterdam-Bordeaux flight has been done without a stop. The distance, according to the course which he took, is between 620 and 650 miles. It was only the head wind which prevented him from continuing the non-stop flight all the way to Lisbon.

A later message which does not mention the date states that he reached Lisbon without further incident.—Altogether another Eagle's feather in the Rolls-Royce cap.

Aircraft in 1924.

[All the World's Aircraft 1924. 387 pp. + xi pp. + 45 advt. Two guineas net. Sampson, Low, Marston and Co. Ltd., 100 Southwark Street, S.E.1.]

The 1924 edition of *All the World's Aircraft* is now on sale at the usual price of two guineas. This year the format of the book has been entirely altered. Instead of the illustrations and reading matter being lengthwise of the page they are arranged cross-wise, very much as in the pages of THE AEROPLANE newspaper. The volume is consequently bound lengthwise of the page instead of across one end. The result is certainly a more handleable volume which is much less easily damaged and it is certainly more naturally reliable.

As in the past the contents of the new edition are almost entirely different from those of the previous issue. Also instead of including information up to the end of 1923 it is brought up to the end of March, 1924, so as to coincide with the financial year of the British Government.

The aircraft and engines include all the new types produced during 1923 and the first months of 1924 and all types in current use during that period. Those of earlier date which have gone out of use or have not been produced in quantities have been eliminated so that the volume deals entirely with new and up-to-date aircraft.

The Historical Section, which deals with the flying services of all nations and the development of civil aviation in every country, contains a vast amount of information which has hitherto been unavailable. For example there is published for the first time a complete account of the constitution and organisation of the Italian Air Force, which is known as the *Regia Aeronautica*, and of the *French Service d'Aviation Militaire*. These articles give the composition of the various units of these Services showing whether they are fighting, reconnaissance or bombing units and the types of machines and engines with which they are equipped. The location of the different units is also given and the way in which the units are grouped into regiments.

Information of this kind, backed as it is by illustrations, descriptions and in most cases general arrangement drawings of the types of machines used by the different foreign flying services, which appear in the Aeroplane Section of the book, should be in the hands of every unit of the Royal Air Force as it is in the hands of the Naval, Military and Flying Authorities of all foreign nations.

Polish Aviation.

It is announced from Poland that the Chief of Aviation, General Francois Leveque, who was borrowed from the French Army and has held the post since January, 1923, resigned his appointment on August 15th and returned to France. A Polish Army officer has been appointed to the post and henceforth the Polish Aviation Services will be entirely under native control. One hopes this means a change for the better.

Poor Fish.

A representative of the *Daily Chronicle* discovered a motor car in the City on Sept. 4 which is reputed to resemble a fish in appearance. On further inquiry he elicited information that this automobile was one "of two recently built in Germany to the designs of Dr. Rumpler-Taube, the German designer who built the famous Taube aeroplane."

The aftermath of war has been responsible for a number of inventors of aeroplanes dabbling in automobilism. On the other hand one can quote a few British examples, notably Professor Avro who has produced a very efficient little two-wheeled motor-car-bicycle which he uses daily in the Southampton district, and Mr. A. B. C. Sopwith who turned his factory at Kingston over to motor-cycle construction early in the Peace.

Inversely the names of Mr. Napier Lion and Mr. R. Eagle so prominent in the aircraft world to-day were famous in connection with automobiles which before the War were household words in the motor-car world. [One might add Mr. Siddeley J. Guar.—Ed.]



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THE SPANISH-MOROCCAN WAR.

By "BOYD CABLE."

[As the war between the troops of His Majesty the King of Spain and those of the Riff raider Abd-el-Krim is so much in evidence at present the following article by Lt.-Col. E. A. Ewart ("Boyd Cable") on the Air Force of Spain at work will be found of unusual interest.—Ed.]

Although at first sight we may suppose that we have no national interest in the efforts of Spain to subdue the rebellious tribesmen in the territory which was handed over to her by European mandate, the fact that a certain amount of air work is being carried out by the Spanish Army at least gives an interest to readers of THE AEROPLANE. Besides this, however, it must be admitted on closer examination, that the British Empire is more concerned in the Moroccan affair than appears on the surface.

In the first place, deliberate efforts are being made by the Riffians to represent their war with Spain as a struggle of "Cross against Crescent," and news of the "holy war" is carefully circulated to Mohametan countries by agents and by the native press, together with appeals for funds to support the Crescent cause. Egypt and India are specially selected for such appeals, and West Africa I believe also hears something of them. Naturally, the Riff agents put the best possible complexion on the reports circulated, exaggerate to the fullest extent any trifling success of the Moors, and minimise any Spanish victory.

Those who know their East know what results such reports always have. Anything which lowers the prestige of the white man in one part of the world does so in every part where there are coloured races. The more convinced the half-educated native is that his fellows are proving more than a match for the white man, the more cheeky and troublesome and resistant of white authority he becomes.

The oftener an Afghan or Mesopotamian tribe hears that natives armed only with rifles have shot down in one day's fighting four aeroplanes (which probably multiplies to 40 by the time it reaches them) the more likely they are to keep on potting at British 'planes and the more hopeful of getting a bag of them.

All this may seem far-fetched to the average British reader, but I repeat that those who know their East will readily agree that inter-communication between Mahometans in widely-separated countries is wonderfully complete, and news items of any war between "Cross and Crescent," or white men and "natives," has a circulation of amazing extent, and an effect of considerable importance.

The fighting in Spanish Morocco is in many respects like those "side show" wars we are continually having on the North-West Frontier of India. The country is ruggedly mountainous, and difficult for the movement and operation of any large column of white troops, and small bodies are always subject to the risk of being surrounded and forced to fight a way on or out against an army of snipers shooting down from the hills and the cover of rocks and sangars. Naturally a force possessing aeroplanes makes the best possible use of them, but the Spaniard finds his air operations handicapped by just the same troubles as do our flying men in Afghanistan. The 'plane is sighted a long way off and when it arrives over its target the enemy have gone to ground and the bombs blast vain holes in the hills. The mud villages are hardly worth the price of a bomb to destroy. A forced landing—with the nearest level ground hours away and most of the immediate landscape below standing on edge—leaves the meagre consolation to the nurse of a conking engine that he isn't likely to survive the landing to enjoy the hospitality of hillsmen who have their own ideas on the treatment of prisoners and where as R.K. gruesomely sings "the women come out to cut up what remains."

Knowing of these unpleasanties I should have expected the Spanish fliers to keep well up out of rifle range in their bombing business; but on a visit I paid to their aerodrome I saw a patrol return and met an officer who displayed a dozen bullet-holes in his fabrics and one in his skin. He dismissed the latter lightly as "Nothing, nothing" but I had to think how fittingly that would have gone on his tombstone if some of those bullets had got any vitals in him or his engine.

It was explained to me that the men are keen and want to make sure of their target, so fly low enough to get a certain O.K. That explanation must serve if it doesn't satisfy those who dislike having machines shot down by rifles from the ground.

At a very gallant little "affair of outposts" which happened while I was there, four machines were shot down in the one day, although it is true this was under exceptional circumstances which perhaps justified the men risking themselves and their machines. The outpost, consisting of 39 men inside a stone wall on a hill-top, was closely invested by a large

force of the enemy, and the garrison were suffering intensely from want of water, especially, as the helio reported, who were wounded. The aeroplanes were flown over as they could come, and the men endeavoured to drop parcels of ice either from their bomb-dropping gear or by throwing them overboard.

Being bound to fly over a small enclosure, it was comparatively easy for the Riffs to put up a barrage of rifle fire knowing the machines must fly through it. One machine was crashed completely killing both occupants, another crashed out in the open "neutral" ground, two others were forced landings inside the Spanish territory but in full view of the enemy.

I reported this "scrap" fully in the *Daily Chronicle* (which I was representing) but for those who did not read the account I may add that the garrison were relieved after a 48 hours' siege, most of it on a small coffee-glassful of water per man per day, and although 20 of the 39 were wounded none were killed.

Of the machines I saw, a number were ex-British Bristol Fighters with Hispano-Suiza engines. Most machines had the forward gun removed, presumably for the sake of expensive synchronising gear. And there were some French Breguets. One Bristol had a Napier Lion engine and the whole squadron was most enthusiastic in praise of this engine, declaring it was perfection, that it never needed a thought being given to it in the air, and that it made flying as safe as walking.

There were three Martinsyde Scouts on this 'drome, sturdy Hunnish looking little fellows. One which performed my benefit seemed to take one long jump along the ground and off in a climb like going up a ladder and then came through a full and complete set of stunts, came down with a falling bullet and landed neatly in a whirlwind of dust.

I also saw a number of sea-planes and flying-boats, mostly German or Italian types with foreign engines. Several were told were practically dead of old age and were being replaced by more modern and efficient machines.

There are no British flying men in Morocco now, although one officer was there for quite a time and acted as instructor. There is plenty of instructing too, because it is a policy of the Spanish Army to get as many officers as possible to get for a course of flying and, after taking either pilot or observer's wings, to return to their own unit. There are points for and against such a system, and readers no doubt will have their own opinions as to whether it is a good one or a bad. It has at least this great virtue—that it makes the ground men familiar with the work of the air men, and (no less important) vice versa.

The number of "wings up" one sees in the Army is rather misleading to anybody not familiar with this system. Seeing the number of wing-bearers about, it might be supposed that the Spanish Army was "up in the air" to a most normal extent. The proportion of pilots too seems of all reason, until it is discovered that pilots, observers, and even ground officers, wear double wings identical in size and shape and only distinguished by a tiny pair of "propellers" plain red or a blue disc in the centre.

Although there are no British there are some German fliers in Morocco. I crossed from Spain to Ceuta in a 'plane which carried three German pilots and several mechanics. They could not speak Spanish (or very little of it) and gathered had gone to Spain, presented their credentials and asked for a flying job, and had been given it.

The enemy of course have no aircraft—or at least I had none when I was there a week or two ago. Since then I have read rather hair-raising reports of the Riffians having had some machines smuggled in by sea, put together by British officers, and that bombing operations were being carried out with panic-creating effect amongst the Spaniards and their native regiments. It may be true, but I more than doubt, I frankly disbelieve it.

Not that it would be impossible to smuggle in a machine or two. But from what little I saw of Jack Spaniard certainly didn't strike me as likely to get badly rattled by a few bombs; and as for the Moroccan troops (who are of the same breed as the enemy) if they are so panic-stricken by a few bombs, I wonder what must be the state of the nerves of the Riffs who suffer a daily dose of the same medicine.

It would no doubt add to the interest (from a military or air-war student's point of view, if not necessarily from that of the bombed troops) and I'm quite certain to the non-pleasurable excitement of the air fighters if the enemy had a few machines. But they certainly could not have them long. An aeroplane isn't as easy to conceal as the infantry might hope in country where the landing grounds or places are as conspicuous as a chalk mark on a blackboard.

The Spanish force mustered some 50 machines in that

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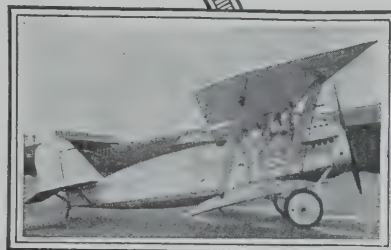
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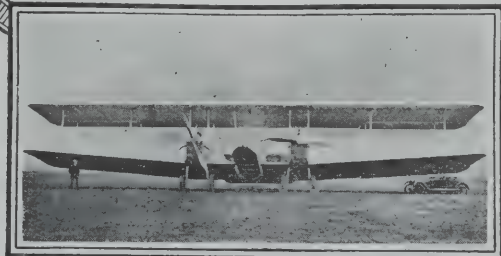
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post relief I have mentioned (some of them from Spain I believe) so that a lone enemy plane or two would have a lively circus to meet and must either finish quickly in an air scrap or be ignominiously bombed to death on the ground to which (however well it might be concealed) following hunters could track it down on its return from raids.

The Riffs I heard did have a machine in the long ago but it never did anything except provide a target for bombers. This tale was unofficial gossip, and I can't vouch for it.

The enemy have no artillery—to the regret again of the bombers, although no doubt to the satisfaction of the groundlings. They used to have some, as this time I can testify from air photographs I saw, and they again provided excitement and bombing targets while they lasted. The keen members of the bombers openly pray (when the Infantry aren't listening) for more enemy guns.

In addition to destroying villages and harrying Abd-el-Krim, Chief of the Riffs, from pillar to post (a favourite amusement) the work of the Air Force includes efforts to set fire to the ripe or gathered crops. Considerable success has met these efforts, the usual method being to have some machines spray plentiful petrol overboard and the tail machine to drop some sort of blazing material on the petrolled area.

It is by the way a somewhat quaint war usage for the Spanish men when they select a village for destruction, to fly over and politely drop leaflets advising the women and children to shift camp by next day if they have any dislike of bombs. Presumably the invitation to move is not tendered to the fighting men, and naturally they wait there to be bombed.

It is a pleasure to be able to put on record my appreciation of the kindness and hospitality I met everywhere I went in Spanish Morocco, and I also feel that there is an important significance in the treatment accorded me. I visited the war zones on behalf of the *Daily Chronicle* (to the Editor of which I am therefore indebted for permission to contribute this article to *THE AEROPLANE*) with a perfectly open mind and a free hand to write any impressions made on it—some articles of which have since appeared in the *Chronicle*.

The authorities both in Madrid and Morocco required to know nothing more than that I was representing a British newspaper and that I had served as an officer in the British Service, and told me promptly that they asked for nothing better than that I should see everything and tell the facts of what I saw. They went out of their way to facilitate my

observations, took me here, there and everywhere, press to tell them of anything they had overlooked and I want to see, and assented eagerly to any answering suggestion I made—all without reservation or stipulation as to what might say, or any censorship of what I wrote.

I am bound to say I was most favourably impressed by the open-ness, which in itself gave the lie to tales of inefficiency and maladministration and a hush-hush policy necessary to conceal the truth. In the course of several weeks to round the zones from base to front lines I saw no discredit and a great deal most creditable to Spain.

The "enemy" zone is estimated to have about 500,000 inhabitants, of which some 350,000 are in the mountainous regions. If all the Riff tribes combined they could muster a force of about 50,000 in the field, but all the tribes are always on harmonious terms.

The Riffians are Berbers (whose origin is lost in antiquity). Probably they came from Phœnicia or Libya and conquered and overran the negro tribes in Morocco. There are many small tribes of Arab descent but the rest are Berber. When other invaders came the Riffians were pushed back into the mountains but held on there and retained their aloofness and never mixed in marriage and descent.

[There is a theory also that the Berbers are the remnants of the Vandals—the advanced wave of Goths who swept through Spain in front of the Visi-Goths and swamped the Roman Civilisation in North Africa. They would then be an early Nordic people, as is shown by fair hair and blue or green eyes being common among them. In their turn they were pushed out of power in wars with the Gothic Emperors of the Western Roman Empire and later by the Byzantine Emperors. Finally they were driven to the mountains by the Semitic Moorish wave.—Ed.]

The Beni-Arriguel are the most warlike tribe and Abd-el-Krim is the Chief of this tribe, the head of the rebels and the chief fomentor of trouble. His authority however is always undisputed and at times some tribes make an attempt to break from him. Naturally any small success against the Spaniards enhances Abd-el-Krim's reputation and gains him adherents (especially if there is any hope of loot) and is essential to his hold on the tribes that he keeps making attacks.

Therefore continual raids and attacks on convoys and posts are certain although the Spanish forces are now too strong to give much hope of any appreciable military success beyond these outpost areas.

A MORNING WITH THE CHINESE.

[As the Civil War in China is also much in the public eye at the moment, the following description of Chinese Aviation by one who lived in and on it for several years will be found useful.—Ed.]

"Kan lao yeh, kan lao yeh, liu tien ban!" ("Kan" master, "kan" master, half past six!)

This hideous jargon is sufficient to arouse anyone, from the deepest slumber, and I open my eyes to see Lu, the most admirable of servants, busying himself with my clothes.

It is cold in Peking at this early hour and speed is the order of the day when dressing.

I can hear Mac in the next room—the sudden hiss of Eno's Fruit Salts betrays his first efforts at getting up. We both enjoyed a typical party at the hotel last night, and Lu, our boy, is careful to be irreproachable in his duties this morning: the coaxing of these two "foreign devils" out of bed in the winter is to this Chinese "boy" like some religious rite: a prayer to wake them; medicine, bath and breakfast to restore them to life, are but a part of the daily ritual.

"Tsao-Fan" (breakfast) over, a prolonged conversation with our Department commences on the telephone.

We wish to know why the car to take us to the aerodrome has not yet arrived. We are told that the only two cars available are out or broken, or some such lie. After a great deal of argument and much gossip between our servant and that of the Department we are promised a Ford in an hour.

At last it arrives, and we rush past our "K'ai men ti" (gate-keeper) to find an ancient and dilapidated "flivver" full up with two engineers, two American pilots—"the Dooke" and Bill, and a driver and footman, of all people!

"Hello there!" shouts The Dooke, "make it snappy!" We hasten along incredibly narrow hutungs (streets) at a dangerous speed in search of our *pilote aviateur français* with whom to complete our party.

"Heuh!" yells Bill in a good strong "Noo Yoik," accent, as we arrive at his house, and out he comes wearing an enormous bushy-like flying helmet, puffing at some foul "Caporal." He excuses himself and apologises profusely about nothing at all. Nobody takes any notice of what he is saying.

One is struck by the unusual appearance of Bill—his face

* "Kan"—Chinese equivalent or rendering of my name.

bears signs of some recent struggle. It transpires that he has just emerged from "pasting" the Minister and his staff of some South American Republic on their own territory in their suite at the hotel. The quarrel was, of course, over some woman or other, anyway Bill waded in and ran.

We chide him good-naturedly about it, but he only shrugs and shakes his head and shoulders from side to side in mannerism of his—and replies, "Yeah! Ain't we got to live?"

At last we are under way from the aerodrome and we enter the most crowded of the thoroughfares of the city, the Chien Men, or main gate. Here the road seems almost impassable, so thick are the rickshaws and carts.

We don't slacken for an instant, but keep on going straight through the traffic in front of us scattering like chaff before the wind. Dogs, coolies, pigs and rickshaws flash past on every side with not an inch to spare.

Our talkative Bostonian, the Dooke, is busy shouting instructions to the driver and the mob:—

"Snap out of it there, Napoleon!"

"You gardamdummy!"

"Rooin him!"

And "Pull your neck in!" as we almost meet our Ward under a "honey cart," as he affectionately calls the silent vehicles of Peking.

The cold morning air near the Temple of Heaven—no beautiful altar the Chinese believe to be the centre of the universe—takes some getting used to, polluted as it is by the dreadful procession of refuse. Even the stench of bad air is a blessed relief, for the Dooke's mouth, crowded, as it is with the banded butt of some foul Philippine product, is in full blast.

However, we are soon out in the country, and the Dooke cry out: "Let's go to Nan Yuan field!"—as if we could go anywhere else! But then this is merely American. "Let's hurry up!"

The road from here is a mud embankment of some height, almost straight, and devoid of any interest except, possibly, for a temple, where the good Chinese wife prays for her children so necessary to her for Celestial blessing.

We might have burnt a stick or two of joss for our members, but we feel more like praying for our last month's salary, now long overdue.



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Perched on this perilous road we are making good progress when all of a sudden a burst tyre brings us to a stop amid a volley of profanity. The local dialect is rich in the most delightful and picturesque oaths, and we fairly revel in it, calling down imprecations on everyone and everything to the relief of our feelings and the amusement of our driver, who, not to be beaten at his own game, adds some charming little remarks about H. Ford of Detroit and his predecessors.

"We ain't so gardam lucky, are we?" says Bill.

Of course we have no spares, tools or puncture outfit—they've all been sold long ago by our driver.

With the aid of the footman he pulls off the tyre with a sickly grin, and gazes at it like the fool that he is.

"Take it and eat it, you gardamdumny," shouts The Dooke. "Looks as though we are in for a hike."

But we don't have to walk after all. A brilliant idea comes to the driver. Wondering, we watch him pull up his trouser-leg and expose a hideous-looking calf in the various stages of decay customary in this country.

"Hey! what 'er yu mendin, your leg or our car, you great hoodoo?" gasps The Dooke, as we roar with amusement.

"Why, I guess he's bughouse, ain't he?" asks Bill.

With a triumphant smile the driver pulls off his sore leg a large piece of sticking plaster and bangs it down on the punctured tube. He replaces and actually inflates it.

"One up to you, Wang," says Bill. But, of course, it is a failure, and we eventually proceed on a flat tyre.

Cries of pain mixed with relief spring from us as we finally bump onto the "field"—a gigantic plain of a parade-ground which serves as an aerodrome. There are two or three lonely-looking hangars quite inconspicuous by comparison.

But we are all half-frozen, as it is still an early winter morning, and the usual icy wind has begun to blow clouds of dust to a great height, to say nothing of penetrating our Sidcots, like some fiend prodding us with icicles.

We go to our mess to thaw out in front of a stove, and read the weirdly-constructed letters from the Department which are usually awaiting us.

"Here, Dooke, listen to this," says Bill, as he opens one.

"What's the good word?" we all demand.

A letter is read out as follows:

"The Director has attacked Mr. Mackellin to the excusion flying which will now be appointed to every day, owing to the public taking much pleasure in touring. The Tsinan-fu service is suspend as being too popular, and for holiday. All instructors are asked to be punctual as the trouble with the Mukden soldiers is fix and promised to fly at 9.30 a.m." (Not signed at all.)

This last remark means that the soldiers have been asked to keep off the aerodrome while flying is in progress.

Previously swarms of brutal and licentious soldiery were wont to hang about—even in front of Avros taking off, quite unaware of the danger (to the machines).

But our work in front of the stove is cut short by the entry of a Chinese interpreter and chief student.

They want to know if we can fly to-day, as the strike of the mechanics which has lasted for some time, owing to lack of pay, is over, and they are now willing to work again.

We raise a cheer of relief, and amid cries of "cum-ann, let's go fly," "En avant," "En l'air," we make for the hangars.

Here we try to sort out pupils from an assembly of coolies, soldiers, persimmon and pea-nut vendors and Chinese mechanics, they all look much alike, but eventually we get them separated.

The Dooke is immediately to be seen haranguing his class in a steady drawl; you can hear snatches of it now and

then:—

"Students gotta adjust throttle without gazin' at it—L take off with yer motor poopin'—Mind and don't connect with another ship while taxying—Don't give her too much gas," and so on.

He is chiefly engaged, however, in drawing pictures on the ground with his stick, illustrating "ships" in various positions. His interpreter must be a wizard.

Bill, the buccaneer, can be seen flying an erratic course round the sheds at a low altitude, his voice rising above the roar of the machine when coming in to land, instructing pupils in "pidgin New York."

The aerodrome is strewn with aeroplanes with engines stopped by bad handling. There's The Dooke shouting something to a solo pupil about "comin' in to roost with dead stick"—"motor quit shootin'"—but he is out of his skin at once describing more diagrams on the ground, and shaking his eternal butt furiously.

Instruction and destruction are in full swing. It is obvious that things are not going too smoothly, judging by the state of the aerodrome, which is one mass of coolies, shaws and soldiers in spite of the "aerial police" who stand absent-mindedly away from the spot where they are supposed to stand, with a red flag, to denote the boundaries of the aerodrome.

This continual obstruction proves too much for the patience of our French hero who, having been prevented from landing several times in succession, descends in Gallic wrath, regardless of danger, and, having pulled up in the midst of a small crowd of trespassers, leaps out and chases off one of these at the tip of his boot, yelling imprecations at him to the top of his voice: "*Espèce de chameau—Ambassadeur merde!*" being his favourites.

He rather overdid this educational stunt once, when, in a terrible rage, he emphasised his remarks by bringing down his fist on the side of the machine to the detriment of the engine.

There is never a dull moment, and the *pièce de résistance* comes at the end of the morning's work in the form of a solo by one of the pupils, a Mr. Wun Wing Lo.

He is led gesticulating to his machine by his instructor who announces boldly that he is about to send up a pupil alone and that he won't take any responsibility.

"You're boasting like Hell!" shouts The Dooke, as he retires to a safe spot.

"It's a great day for a murder," remarks Bill, in a ominous voice.

After testing his engine almost to destruction on the ground, Mr. Wun Wing Lo decides to defeat gravity by taking off. Away he goes on an erratic course, his Mono too hard to swallow too rich a mixture—"Hittin' on only two cans out of seven," as The Dooke puts it.

Any white man would have been killed, when, accompanied by cries of "He'll be ruined!" from Bill, he completes a circuit of the aerodrome and lands at a cold speed regardless of wind and tide. He turns the machine over on its back, and the unlucky Avro disgorges its full crew quite unhurt amid a tumult of applause. The other pupils rush up with congratulations.

"He's not good, he's lucky," says The Dooke, with a chuckle.

The excitement over we decide to make for home—a terrible eight miles distant.

"Say, when do we eat?" cries Bill—we are by now ravenously with hunger thanks to the cold invigorating air in the parts and our thoughts turn towards tiffin.

"Let's go to Peking," suggests someone, and once more we face the appalling journey in the car.

THE ROYAL AIR FORCE.

The London Gazette.

Sept. 2.

GENERAL DUTIES BRANCH.—Air Vice-Marshal F. R. Scarlett, C.B., D.S.O., is restored to full pay from half-pay (Sept. 1); Air Vice-Marshal Sir V. Vyvyan, K.C.B., D.S.O., is placed on half-pay, Scale A (Sept. 1).

The follg. Plt. Offs. on probation are confirmed in rank (May 10):—J. A. Bramley, H. St. E. Dracott, M. M. Miln, W. J. Pearson, P. Slocombe, C. G. C. Sullivan, C. U. G. Tristram. The follg. Plt. Offs. are promoted to rank of Flg. Off.:—F. S. Henderson (June 27); D. R. Stewart (July 4); R. T. Halliwell (Sept. 1).

STORES BRANCH.—Flg. Off. F. A. Osborn, M.M., is placed on the retired list (Sept. 2). Flg. Off. W. Vaughan-Shaw is removed from the R.A.F., His Majesty having no further use for his services (Aug. 21).

MEDICAL BRANCH.—Flt. Lt. W. E. Hodgins, M.B. (Capt., R.A.M.C.), is granted a permanent commn. in the rank stated (Sept. 3).

RESERVE OF AIR FORCE OFFICERS.—Flt. Lt. D. A. Stewart, M.C., D.F.C., A.F.C., ceases to be employed with the Regular Air Force (Aug. 29); Flg. Off. R. G. Lawson is confirmed in rank (Feb. 26).

MEMORANDUM.—The permission granted to Lt. F. S. Symondson, M.C., to retain his rank is withdrawn on his enlistment in the Territorial Army (June 26).

Appointments.

Week ending Sept. 8.

GENERAL DUTIES BRANCH.—Wing Commanders T. G. Hetherington,

C.B.E., to Inland Area Aircraft Depot, Henlow, for technical duties (Sept. 1). Hon. L. J. E. Twisleton-Wykeham-Fiennes, to Station 10, Bircham Newton to command, 8/9.

Squadron Leaders J. V. Steel, O.B.E., to School of Army Cooperation, Old Sarum, 8/9; C. H. Elliott-Smith, A.F.C., to Armament Gunnery School, Eastchurch, 8/9; W. H. Dolphin, to H.Q., Inland Area, 18/8; J. O. Andrews, D.S.O., M.C., to No. 2 F.T.S., Digby, 8/9.

Flight Lieutenants H. H. James, to H.Q., Iraq, 25/7; W. M. M.C., to Station H.Q., Bircham Newton, on transfer to Home Depot, 10/9; P. L. Plant, to H.Q., Iraq, 25/7; H. S. Broughall, M.C., D.S.O., to No. 4 F.T.S., Egypt, 16/8; R. F. L. Dickey, D.S.C., to R. Depot, 30/8; F. Fowler, D.S.C., A.F.C., to No. 1 School of (Boys), Halton, 8/9; W. E. G. Mann, D.F.C., to No. 25 Squadron, Hawkinge.

Flying Officers H. G. P. Ovenden, to No. 7 Sqdn., Bircham Newton, 1/9; (Hon. Flt. Lt.) U. C. de Burgh, to No. 19 Sqdn., Duxford, 1/9; F. H. Ronskley, M.C., to R.A.F. Cadet College, Cranwell, 1/9; H. K. Goode, D.S.O., D.F.C., to No. 2 F.T.S., Digby, 8/9; J. Dewar, to C.F.S., Upavon, 8/9; A. H. C. Derby, F. A. Pump, D.C.M., and E. R. Maddox, M.C., to No. 1 F.T.S., Netheravon, 1/9; J. U. McKinnon, to No. 1 Sqdn., Netheravon, 8/9; A. Thomson, to No. 5 F.T.S., Sealand, 8/9.

STORES BRANCH.—Squadron Leaders (Accountants) C. G. Muir, O.B.E., to H.Q., Coastal Area, 5/10; T. H. Evans, to No. 1 School of T.T. (Boys), Halton, 5/9. Flight Lieutenant (Accountant) J. Gilbert, to No. 4 F.T.S., Egypt, 15/8. Flying Officer (Stores) Sleigh, to R.A.F. Depot, on transfer to Home Estab., 13/11. Flying Officer (Accountant) J. J. Caiger, to No. 5 Armoured Car Coy., Iraq, 1/9.

1919

1924



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CIVIL AVIATION IN CANADA.—(Continued.)

Over and above the work carried out by commercial firms in Canada, a good deal of Civil Aviation has been undertaken by the Royal Canadian Air Force. After the formation in the winter, 1919/20, of the Canadian Air Board, a survey of conditions was made to determine what public services could be performed by aircraft in Canada, and it was discovered that the Forestry Branch in particular was willing to co-operate in experiments to discover whether aircraft could effectively be used for fire patrol and for survey work. The administrative and survey branches also were alive to the possibilities of aircraft as an aid to this work in the more remote parts of the country, and the probable value of aerial photography for survey work early recognised.

In autumn, 1920, a small number of air stations were established for experimental work along these lines, this work being under the control of the Civil Branch of the Air Board, and during 1921 and 1922 work on forest patrol, survey, etc., was carried out by the Civil Branch in collaboration with the Government Departments interested.

THE REORGANISATION OF THE AIR BOARD.

In January, 1923, the Air Board was amalgamated with the Department of Militia Defence and Naval Service and the whole Air Board became part of the Royal Canadian Air Force. The civilian work carried on for other Government Departments was therefore carried out by personnel of the Air Force. As the work which had previously been carried out by the Civil Department of the Air Board in Ontario and Quebec had passed beyond the experimental stage, it was decided that the Air Force should withdraw from this field leaving the commercial exploitation of Civil Aviation in these provinces to private enterprise. During 1923, therefore, the work of this nature carried out by Service machines and personnel has been mainly confined to pioneer and experimental work in other provinces, or to work of a nature not yet developed to a commercial stage.

In March, 1923, an Inter-Departmental Committee, presided over by the Deputy Minister of Defence and attended by representatives of all the interested Government Departments, was held and as a result a very comprehensive programme of work to be undertaken by the Canadian Air Force in 1923 was agreed upon. This work covered a very wide range both of territory and of nature. In space the programme ranged from Nova Scotia to British Columbia, in nature it included not only forest patrol, survey, and fire fighting services, but patrols for the prevention of illegal fishing, the transportation of parties of investigation, the spread of white pine blister rust, the transport of gear and provisions for survey parties in remote districts, the distribution of poison dust over areas infected with insect pests, surveys of water power resources, and so forth.

GENERAL RESULTS OF WORK IN 1923.

Taken over all, the programme was successfully carried out. Financial reasons dictated postponement of certain items, and lack of suitable equipment or delay in delivery of new machines prevented the completion of other parts. Unusually wet weather greatly reduced the forest fire risk over a large portion of the territory and relatively little call was therefore made for fire patrols.

Wet weather also interfered to some extent with photographic work in British Columbia, and the late delivery of new machines delayed a start on this work in British Columbia until too late for the best results, which are obtained in midsummer with the sun at its highest and the best atmospheric conditions.

The work was also handicapped by the fact that a number of the older and more experienced mechanics who had been employed by the Civil Section of the Air Board had preferred to take their chances in civil life rather than join the permanent Air Force. As a result many stations failed to obtain satisfactory service from their engines, practically all of which had already several seasons' work behind them, and were not even new when they arrived in Canada and therefore particularly required the attention of skilled men. In fact, one of the urgent needs of the Canadian Air Force is the replacement of obsolete equipment and the enlistment of a really skilled mechanical staff and steps to secure this for the present year are said to have been taken.

DETAILS OF SERVICE FLYING.

The civil work of the Air Force is detailed station by station in the report, and in a very condensed form this procedure may be followed here.

Vancouver, British Columbia.—Permanent station with workshops and wireless. C.O., Sq. Ldr. A. E. Godfrey. Staff, 2 pilots, 1 photographer, 3 N.C.O.s, 20 mechanics. Equipment, 3 H.S. 2L flying-boats, 1 Viking amphibian. Total flying time, 271 hours, 195 hours on other than Air Force account. Seventy-two hours on salmon fishing patrol

for the prevention of illegal fishing. This work was found extremely effective.

Forty-nine hours were flown for the Department of Agriculture in connection with the control of white pine blister rust, a widespread timber disease. The use of aircraft in this work enabled the distribution of the disease to be studied much more effectively than was possible from the ground, and in the opinion of the Department concerned has been of very great value to them.

Thirty-nine hours' flying was carried out for the Customs Department in connection with illicit liquor traffic and smuggling investigation. One flight resulted in the seizure of a rum-running motor-boat, and the moral effect of the patrol is regarded as having a very potent effect.

Nine hours was spent in forest patrol. This small total was due to the absence of fire risks in the wet weather prevalent.

Twelve hours was spent on the examination of water power resources for the Water Power Branch.

Three photographic flights were made for the Department of Public Works and a number of small photographic operations were carried out for other public departments.

High River, Alberta.—Permanent station with workshops and wireless. C.O., Sq. Ldr. G. M. Croil, A.F.C., Lt. Sq. Ldr. A. L. Cuffe. Staff, 6 officers, 7 N.C.O.s, 5 mechanics. Equipment, D.H.4s (Rolls-Royce Eagle VI engines). Total flying time, 555 hours.

Four hundred hours' patrol for Forestry Department. It is recorded that in four years of forest patrol from Morley to High River, which now replaces Morley, no single forest landing has occurred, which is an amazing record in view of the age of the machines and Rolls-Royce engines in use.

Eleven hours 40 minutes' flying on photographic work was done for the Topographical Surveys Department, 16 hours similar work for the Forestry Branch, 10 hours 50 minutes for the National Parks Branch, and 16 hours 35 minutes for the Reclamation Service. This latter undertaking was for the location of sites for reservoirs.

In the winter months experiments in winter flying were undertaken.

Manitoba.—Permanent station at Winnipeg. Sub-stations at Victoria Beach, Norway House, and The Pas. C.O., Lt. B. D. Hobbs, D.S.O., D.S.C. Staff, 7 officers and 10 airmen. Equipment, 4 H.S. 2L boats, 1 H.16 boat (from July), 3 Vickers Vikings (from July, Aug. and Sept. respectively).

Victoria Beach.—112½ hours' forest patrols for Forestry Department (22 major fires and numerous small fires reported).

Six and three-quarter hours' carrying provisions for Geological Survey party.

Twenty and a-quarter hours for Department of Indian Affairs (Transport of treaty money, etc.).

Twenty-six hours' photographic survey. Manitoba-Ontario; boundary for Topographical Survey Department.

The Pas.—Total flying time, 136 hours, 36 minutes.

One hundred and eleven and a-half hours' patrol, 15 fires were located. On several occasions crews, provisions and equipment were carried to the scene for fighting fire and brought back.

Twenty-five hours' photography for topographical survey. A further undertaking of this nature had to be abandoned owing to late delivery of Viking amphibians.

Norway House.—75½ hours' flying for Forestry Department. Twenty forest fires reported, 2,500 sq. miles of forest surveyed and mapped as to timber types.

Four hundred lbs. of provisions transported for Geological Survey party.

Eight and three-quarter hours' flying for Department of Indian Affairs (transport of treaty money, medical and administrative personnel, etc.).

Ottawa.—C.O., Flt. Lt. C. McEwen, M.C., D.F.C. Staff, 3 officers, 15 airmen. Equipment, seaplanes.

Little civil work was carried out, most of it being experimental in connection with the development of improved methods of photographic survey.

Total flying time, 27 hours (17½ hours' experimental photographic survey, 8½ hours' photography—canals and harbours—for Public Works Department).

Dartmouth (Halifax, Nova Scotia).—C.O., Sq. Ldr. A. B. Shearer. Staff, 2 officers, 10 airmen. Equipment, seaplanes. Total flying time, 92 hours.

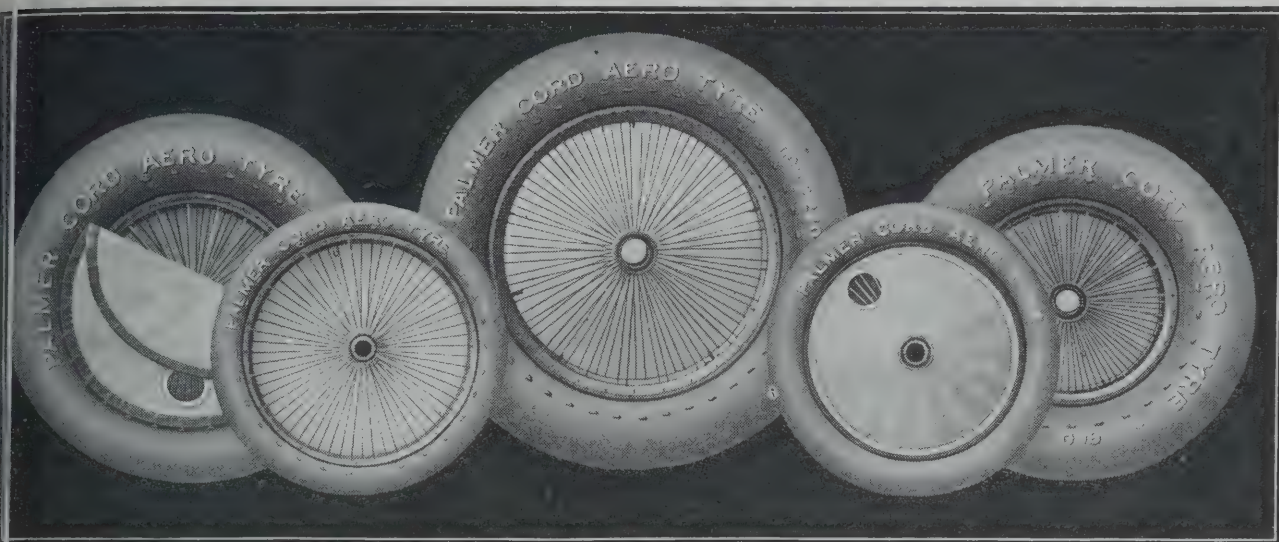
Fourteen hours' photography for Water Power Department. Photographs of hydro-electric plants, surveys of watersheds.

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75×55	168	111.12	25.4	Central	700×100	96	178.	55.	132/46	1000×150	201	185.	60.32	125/60
100×60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	1000×180	148	220.	80.	Central
50×60	30	89.	31.75	Central	650×125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
75×60	21	160.	28.	Central	750×125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900×230	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
100×75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
100×75	78	178.	44.45	132/46	800×150	82	185.	55.	135/50	1100×220	134	220.	66.67	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	"	136	250.	80.	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	1250×250	133	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
100×100	77	178.	44.45	132/46	"	169†	185.	55.	135/50	1500×300	115	304.8	101.6	Central
"	92	185.	55.	135/50	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	95	185.	55.	Central	1000×150	131	220.	66.67	Central	1750×300	139	400.	152.4	Central
					"	150	185.	55.	Central					
					"	167	185.	55.	125/60					
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In all, Canadian Service machines flew 1,422 hours for purely civil purposes, and as will be realised from the outline above given this total was almost entirely concerned with pioneering and development work in the remoter parts of the Dominion. There can be little doubt that this work will be of immense value in the future development of Canada.

THE FUTURE OF CANADIAN FLYING.

It does not seem unreasonable to expect that in the not far off future the pioneer work of the Canadian Air Force in the Western Provinces will form the basis for the establishment of a really sound commercial aviation business—just as has already happened in Ontario and Quebec.

That there are almost unlimited fields of useful work for the aeroplane in Canada is obvious from the outline of the work already accomplished. A very large part of this work is scarcely possible without the use of aircraft.

In what are known as the Prairie Provinces conditions are largely favourable to the use of land machines. Over most of the rest of Canada rivers and lakes afford ample facilities for the use of seaplanes. In winter ski undercarriages are essential everywhere, and the extremely low temperatures encountered lead to some difficulties with both machines and engines. These difficulties are by no means insuperable—methods for overcoming them successfully are already well developed in most cases.

THE NEED FOR MORE SUITABLE AIRCRAFT.

Nevertheless, future progress in the development of aviation in Canada is very largely a question of the production of specially designed aircraft and accessories suitable for Canadian conditions. Generally speaking, a high performance in the usual sense is not required. A good ceiling is necessary for photographic survey work over large areas. A quick get-off and a low landing speed are pretty certainly most valuable qualities for work in undeveloped countries, and in the absence of a demand for a high top speed these three qualities of ceiling, get-off and landing are fairly simply combined. There is very good authority for stating that a large proportion of all the forest patrol, survey, and communication work could satisfactorily be accomplished by machines with a cruising speed of 60 to 70 m.p.h. A certain number of

higher speed machines would be required for urgent work which had to be carried out in high winds, but routine survey work and many other duties can only be attempted in good weather.

Thus a type of unusually low speed, of rugged and simple construction, as cheap as possible to operate and to maintain, is one of the outstanding requirements for Canadian purposes to-day. The results which have already been attained in this country with light aeroplanes have aroused considerable interest in Canada, and it is believed that a very great deal of useful work could be accomplished using machines having somewhat similar characteristics. In fact the technical officers of the Canadian Air Service are understood to have in hand a small flying-boat which is distinctive in the light aeroplane class. If this type fulfils expectations it will permit of the carrying on of certain types of patrol and other similar work at from one-fifth to one-tenth of the cost of similar work with existing high-powered aircraft, and will enormously extend the practical utility of aeroplanes in Canada.

THE PROSPECTS OF BUSINESS IN CANADA.

One feels very firmly convinced that there is a very great future before aviation in such countries as Canada, but that it is likely to offer little in the way of opportunity to British manufacturers of aircraft who will not take the trouble to investigate and to provide for the special requirements of the country itself. It is the opinion of the responsible technical officers of the Canadian Air Force that Canada's wants in the way of aircraft must eventually be met by the country's own indigenous Aircraft Industry. That being the case, it is very desirable that British interests who wish to take part in Canadian aerial developments should take the earliest possible steps to establish a footing in that country and study its special needs.

At the present moment United States manufacturers are doing quite a respectable amount of business in aircraft and aircraft accessories in Canada. They are naturally in a better position in some respects than are British firms, and if they are left with a free field in this respect it may be expected that the Canadian Aircraft Industry of the future will be mainly under United States control, both financially and technically. If, however, the British Aircraft Industry were to take the trouble to study and comply with Canadian requirements there is no reason why British capital and technical ability should not take a large part in Canada's aerial future.

Regulations and Safety.

It is customary to assert that the relative freedom from serious accidents enjoyed by British Civil Aircraft is due in the main to the careful and conscientious regulation of flying by the Air Ministry.

In the United States of America the Aeronautical Chamber of Commerce, the Aircraft Manufacturers' Association, and other bodies and persons attribute the fact that there are a large number of aviation accidents annually due to the absence of any such regulation and use the facts as an argument in favour of legislation controlling aviation upon lines not unlike those in force in this country.

The majority of aviation accidents in the United States occur to what are known as "gypsy" or itinerant fliers. These are travelling joy-ride and exhibition pilots, mostly equipped with aged surplus war machines and engines who travel the country as the probability of business may suggest. They have no fixed base, and statistics as to their operations are necessarily somewhat vague. Nevertheless their record of casualties is undoubtedly regrettable. For the year 1923 the fatalities due to this class of flying were 85, and 162 persons were injured. It is estimated that the total mileage flown by "gypsies" in this year was approximately 3,000,000. It is perfectly obvious from the data available as to these fatalities that the accidents as a whole may be traced to the irresponsibility of the operators who are practically all of them possessed of little in the way of capital resources and who would not be operating at all were it not for the extremely low price at which it is possible to acquire scrap aircraft.

There is, however, an equally important class of flying operator in the United States. These are those who operate from a definite fixed base and may be regarded as a class as having reasonable capital resources and consequently a normally developed sense of responsibility. These operators are, of course, just as free from Government supervision and control as are the "gypsies." Their statistics are fairly complete and presumably reliable, and it is not unfair to compare them in respect of accidents with British civil aeroplane operators, who have responsibility thrust upon them.

In three years, 1921, 22 and 23, these fixed base operators

flew 8,767,900 miles. Twenty-five fatalities and 40 injuries were recorded. The miles per fatality average 350,715, and the miles per injury 219,197. British Civil figures for 1921/22/23 and 23/24 are 2,524,000 miles flown, 10 fatalities and 12 injuries, an average of 252,400 miles per death and 219,300 miles per injury.

In 1923 American fixed base operators flew 3,014,600 miles resulting in 12 fatalities and 12 injuries, or one death and one injury per 251,217 miles. British figures for the year 1923/24 were 1,124,000 miles flown, five deaths and four injuries, or 224,800 miles per death and 281,000 miles per injury.

It will be seen that the casualty rates of the responsible American operators compare very favourably indeed with the British rates, and that viewed in this light they seem to bear out the contention that all that is necessary for the safe operation of flying is to fix the responsibility for securing safety on the operators, and that, having done that, Government control is only effective in securing safety to the extent to which it restricts flying. This is particularly the case where it is recalled that the organisation of aerodromes in America is largely non-existent and that a much larger proportion of the flying is probably carried out on obsolete machines than is the case in this country.

On the other hand, the flying is not to any large extent of the nature of regular services to schedule, and therefore bad weather flying is probably relatively infrequent. Also the weather is considerably more favourable for flying and accidents caused by bad visibility or other weather causes are practically not to be found amongst those recorded.

Wanted—a Light Aeroplane.

A Californian aviator is in the market for a light aeroplane and would be pleased to receive catalogues of English machines. He would like a "two-place" but a single seater would do for a while. He does not want a "cheap power motor" but would like a plane which can get out of the ground and land in a small field as he plans much cross-country flying. Anybody who would like to quote him for such a machine is invited to communicate with the Editor of THE AEROPLANE.

Has anybody an Austin Whippet for sale cheap?

DUMBARTON.

THE WINNING PILOT'S OPINION OF THE "PUMA".

LEITH.



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General Manager
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Edgware, Middlesex

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21st August, 1924.

Ref. AJC/WL.

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Dear Sirs,

Having been successful in winning the KING'S CUP
AIR RACE for 1924 on a D.H.50. fitted with a 240 H.P. SIDDELEY
'PUMA' Engine, I feel I must write to express my appreciation
of the PUMA Engine as supplied by you. Throughout this race
of 1,000 miles flown at an average height of about 100 feet, I
ran the PUMA at full throttle, getting 1,500 revs. for nearly
9 hour's flying.

Nearly all my big flights in connection with the DE
HAVILLAND HIRE SERVICE, such as -
My 12,000 Mile Tour, in which I flew 130 hours without overhaul.
in mostly Tropical Climates.
My Flight from Belgrade to London in a day.
From Rome to London in a day.
Again from Madrid to London in one day.
An 8,000 mile Tour through Europe and North Africa.
Winning the £1,000 prize at the International Competition at
Gothenburg last year and
Over 2,000 hours flying for the last 3 years in connection with
THE DE HAVILLAND AIRCRAFT COMPANY - have been done
on SIDDELEY 'PUMA' Engines.

I think the PUMA continues to hold its own as the
best commercial engine, owing to its reliability, accessibility
and endurance.

In conclusion I wish to state that the PUMA will
stand a lot of hard punishment, and will respond to kind
treatment and throttling down, by giving continual good running.

Yours very faithfully,

Alan J. Cobham

CHIEF PILOT, FOR THE DE HAVILLAND AIRCRAFT CO. LTD.

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FALMOUTH.

Mooring an Airship to a Ship.

On Aug. 8 a first attempt was made to moor the U.S. Navy's rigid airship Shenandoah to the mooring mast which has been erected on the U.S.S. *Patoka*—which is apparently a converted oil-carrier. The mast is 90 ft. high, erected on a deck 30 ft. clear of the water and is fitted with a pair of yaw booms which take yaw lines from the airship, when moored.

The *Patoka* was directed to steam head to wind as slowly as would maintain steerage way. The Shenandoah came down to 300 ft. altitude astern of the ship and dropped her mooring line into the water where it was picked up by a motor-boat and the end carried to another boat which held the *Patoka's* wire from the mast and the two lines coupled up.

The wind at 300 ft. being nearly due W. instead of W.S.W. at the surface, Shenandoah had to drop her line to starboard of *Patoka* and drift across her wake. Owing to this drift and the airship's tendency to rise, the motor-boat found the end difficult to hold, but was successful in doing so at the second attempt.

On starting to heave in, the difference between surface wind and that higher up made the Shenandoah drift across the *Patoka* and the bight in the line fouled a fitting on the port yaw boom. This was cleared by reversing the winch while the airship went astern, and to prevent further trouble the *Patoka* altered course to correspond with the Shenandoah. This took the ship towards shallow water, but fortunately mooring was completed before any trouble arose on this account.

When the airship had been hauled down to 200 ft., a slipping clutch on the winch caused a series of jerks and produced enough slack to allow the line to jump the sheave at the foot of the mast and to jamb between sheave and bearing. This took 15 minutes to clear and the wire was so badly frayed that a manila rope preventer had to be fitted until a sufficiency of sound wire rope was wound on the drum.

The actual time taken by the operation was about two hours. The mechanical troubles experienced are of course avoidable by improvement in detail design of the hauling-in gear, and with a little experience on the part of the *Patoka* it is known that the operation can be greatly speeded up. It is also proposed to simplify the whole scheme by simply dropping the airship line into the water astern and then dragging it up and over the after deck by manœuvring the airship suitably. It will then be coupled to the mast line without the assistance of motor-boats.

The airship swung through 360° while at the mast and at no time showed any signs of danger from fouling the *Patoka's* top hamper. It is said that the airship rides much more steadily over the sea than at the shore mast at Lakehurst. There is, however, very acute discomfort both at the mast head and in the ship's control cabin caused by the smoke and fumes emitted by the steamship's funnel.

A New French Gros-Porteur.

The *Morning Post* correspondent in Paris states:—

A new type of aeroplane, made entirely of metal, underwent its first trial flights this morning at the Franczal Aerodrome, near Toulouse. The new machine, driven by four engines, and constructed by the Latécoère firm, has a wing spread of 28½ metres, with a length of 15½ metres. It is capable of transporting a ton weight in addition to its crew and spirit fuel for a six hours' flight. Equipped as a war aeroplane, the new machine can carry three machine gunners, each operating two twin machine guns. These guns are so arranged as to be able to fire forward, behind, and below the aeroplane, which can also carry two cwt. of bombs. The trials of the new machine, which was piloted by M. Enderlin, proved remarkably successful.

This refers presumably to a four-engined Latécoère biplane, the first specimen of which was exhibited at the Paris Salon three years ago. The first machine crashed during its tests, but the essential features of the prototype are retained in the later models, with a possible exception of the provision of "spirit fuel" for 6 hours. Whether this is alcoholic refreshment for its crew or its four Salmson engines is not quite clear. And "two cwt. of bombs" scarcely seems an overload for four engines, considering that many twin-engined machines carry 4,000 lbs. of bombs or so.



Across France by Amphibian.

On April 23 Capt. de Corvette Teste left St. Cyr on F.B.A. amphibian flying-boat (180 h.p. Hispano-Suiza eng. having been officially commissioned by the *Service Central de l'Aéronautique Maritime* to examine the possibilities of operation flying boats between Bordeaux and Cette. report of the flight has recently been issued.

His itinerary consisted of flying from St. Cyr to Toulouse from there to reconnoitre the various courses of the Garonne the Saint Ferréol and Castelnau basins and after studying the course of the River Aude to fly to St. Raphael, Berre and Toulon.

Franczal aerodrome, Toulouse, was made the operational base and from there three river reconnaissances were carried out.

The first on Apr. 28 consisted of following the Garonne north to Moissac and turning east along the tributary Agout then south-east following the Tarn and the Agout Laveur thence flying across country to Toulouse, a distance of approximately 145 kms.

On Apr. 29 the Garonne was followed in a southerly direction to Hauterive turning east to Castelnau then north St. Ferréol and the river Agout and returning to Toulouse distance of roughly 130 kms.

On Apr. 30 a flight from Toulouse to Carcassonne was made overland and continued to St. Raphael along the river Aude and the Mediterranean coast, in all about 200 kms.

In all 34 alightings were made on all the flights, and observations were taken on the possibilities of using the river for seaplane work. In nearly every case of alighting the river current was strong, in some cases too strong to allow of turning round without assistance, but alightings and takings-off were accomplished in every case without difficulty.

Berlin—Angora.

The Berlin correspondent of the *Morning Post* states:—

Much is being made in German newspapers of a very successful first flight of the Junkers hydroplane from Constantinople to Angora. The hydroplane landed at Budapest, Constantinople, the distance between Dessau, which was starting-place, and the latter city (1,400 miles) having been flown in 14 hours. From Dessau the Elbe was followed into Czechoslovakia, and then land was crossed until the Danube was reached in Austria. At Constantinople the floats were removed, for the rest of the voyage to Angora was entirely overland. Angora was safely reached, but no details are available except the fact that in favourable conditions Kemal's capital can be reached from Berlin in less than 30 hours.

This flight began on July 5 from Berlin and was concluded on the following day. Air mail was carried and with the exception of the journey from Berlin to Dessau the entire flight was made by one Junkers monoplane fitted with Junkers engine and piloted by Herr Zimmermann. His total flying time for the whole journey was 27 hours.

[But it is a pity that the *Morning Post* persists in thinking that a hydroplane (which is a motor boat), is the same thing as a hydro-aeroplane, more commonly called a seaplane.—E.]

The H. G. Hawker Engineering Co.'s Sports.

Despite the weather the Hawker Sports Day at Kingston on August 14 was a great success, and the large crowd were amply rewarded by the racing. Great keenness was shown in the inter-departmental competitions, particularly in the Tug-of-War event, and the Relay Race, for the Sopwith and Sigrist Challenge Cups respectively. The Fitting Dept., after a hard contest, won the former, defeating the Machine Shop by two pulls to one, but the tables were turned in the Relay Race, the Machine Shop running in fine style. So good times were recorded. J. Ross in the high jump cleared 5 ft. 7 in. The police team from Sunbury defeated the East Surrey Regt. in the final of the Open Tug-of-War, and the Hawker team won the Open Relay Race.

The prizes were presented to the successful competitors by Mrs. Sigrist, wife of the Managing Director, and proceedings terminated with an open-air dance. The Committee, with Messrs. Whitehead and Scott at the head, are to be heartily congratulated on the results.

Those present included Mr. and Mrs. Sigrist, Mr. and Mrs. F. Bennett, Mrs. Hawker, Capt. L. F. Peaty, Mr. F. S. Spriggs, C. and Mrs. K. Robertson, Mr. Sellar, Mr. E. C. Newman, and Mr. R. Sutton.

THE TRADE AT PLAY.—Here is seen a part of the goodly company of the sports organised by the H. G. Hawker Engineering Co., Ltd., Kingston-on-Thames. Mr. Fred Sigrist, the Managing Director of the firm, and one of the pioneers of British Aviation, is seen in plus-fort in the foreground.

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COMMERCIAL AERONAUTICS. The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 31; Tuesday, 23; Wednesday, 21; Thursday, 21; Friday, 19; Saturday, 19; Sunday, 11.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 90, passengers 429, freight 21 tons.

AIR UNION:

Paris—London: Machines 33, passengers 176, freight —.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 16, passengers 68.

DEUTSCHER AERO Lloyd:

Berlin—Amsterdam—London: Machines 4, passengers 9.

DE HAVILLAND HIRE:

Machines 2, passengers 2.

Total number of trips by British machines: 92, carrying 431 pas.

Foreign machines: 53, carrying 253 passengers.

Comparative Figures:

For week ending Sept. 7.

Machines, 145; Passengers, 684; Crews, 177; Total personnel, 861.

Corresponding week, 1923:

Machines, 139; Passengers, 636; Crews, 222; Total personnel, 858.

Corresponding week, 1922:

Machines, 135; Passengers, 433; Crews, 245; Total personnel, 678.

Corresponding week, 1921:

Machines, 104; Passengers, 356; Crews, 127; Total personnel, 483.

Corresponding week, 1920:

Machines, 129; Passengers, 285; Crews, 154; Total personnel, 439.

Croydon Notes.

The London—Paris service is still doing remarkably well and practically all machines on that route are running full.

Handley Page G-EBBH, returning late Friday night from Zurich with nine passengers, was compelled to land in the neighbourhood of Penshurst, though not on the aerodrome. At first it was reported to have crashed, but subsequently it was found to be intact.

Mr. V. N. Dickinson arrived at the aerodrome during the week to collect a D.H.9 for Mr. Greig's Northern Air Lines. Two such machines have been prepared by the Aircraft Disposal Company Ltd. for this concern. They are three-seaters made so that the two passenger seats can be removed and in their room there is freight hold. The machines are coloured pillar-box red of a slightly darker hue than that affected by the old Daimler Airway. The Belfast—Carlisle route is now being operated, and Mr. Dickinson is Chief Pilot. Mr. C. R. Vaughan, lately flying in Holland, has also joined the line. At very long last Belfast Aerodrome has been equipped with wireless operated by the Air Ministry.

The Surrey Flying Service are finding plenty of joy-riding traffic and the Avros are kept busy on Saturdays and Sundays. Their photography department is going strong. Mr. Muir is very anxious to fly a light aeroplane in the forthcoming competitions so if any firm finds itself without a pilot it cannot do better than apply to Mr. Muir.

Mr. "Jerry" Shaw, of Shell-Mex Ltd., has been at the aerodrome flying the "wireless" Renault-Avro a considerable amount recently. One gathers that this machine is invariably run on Shell spirit.—G. D.

Mr. Cobham's Flights.

Mr. Alan J. Cobham of the De Havilland Aircraft Co., Ltd., has recently undertaken some interesting flights on a D.H.50 (Siddeley Puma) with an aerial tourist.

The first of these was a tour of England and Scotland. On Aug. 25 he flew to Manston for lunch and went on to Norwich where he stayed the night.

On the 26th he lunched at Ripon and spent the night at Edinburgh. After lunch on the 27th he went for a tour during which he flew over Ben Nevis and landed at Renfrew. On the 28th he flew to Southport for lunch and to Worcester for the night. He made a short flight on the 29th to Malvern for lunch and went on to Westward Ho! for the night, and on the 30th after flying to Yeovil for lunch he flew across to the Isle of Wight and landed on the racecourse above Cowes where he stayed the night. The following day he flew back to Stag Lane.

On Sept. 1 he started from Stag Lane before lunch and landing at Croydon and St. Inglevert for Customs he flew to Dinard in four hours. His passenger besides wanting to reach his destination quickly wanted to do some sight-seeing on the way. They flew all down the French coast quite low down and a few hundred feet out to sea to avoid

the bumps. From Deauville to Dinard there is no field, landing much bigger than a tennis court. They circled round Mont St. Michel to get a "close up" of the famous rock and finally landed on the sands at Dinard at low water.

Mr. Cobham took off again in two hours' time just before the tide came up and after spending the night at Dinard he reached Stag Lane during the afternoon on Sept. 2.

In the evening he took up the alleged humorist Mr. J. Henry and his wife Mrs. Blossom Henry for a flight over London during which the remarks that the pair made by means of wireless broadcast to all stations. If the flight was meant to be funny it was undoubtedly the B.I.'s greatest failure. If the transmission were meant to be a success the failure was nearly as great. Someone once said of a certain newspaper that it was run by office boys for office boys. It may equally truthfully be said that the B.I. is run by "radio fans" for "radio fans." If anyone does not know what a radio fan looks like or how he behaves he need but look outside the window of any radio store to see it in bulk.—G. D.

Wolverhampton.

The Berkshire Aviation Tours are now at Wolverhampton where they find business very brisk. Their best port of call was Cannock, where over 1,100 passengers were carried in nine days.

The interest of the general public at Wolverhampton is wonderful. So far 8,000 ladies and gentlemen have paid 10 pence each to come in, and about 16,000 other persons have watched from outside, the gyrations of a pair of Avros carrying passengers, 700 of whom had joy-rides last week although in spite of foggy weather.

Much of the success of the firm is due to the efforts of its business manager, Mr. W. J. Macey, a youngster of 67, retired from the Port of London Authority after 40 years' service and took to Aviation full of new-born enthusiasm.

A new machine is being obtained and expansion will be on. The staff now comprises 16 souls.

Southern Counties' Flying.

The Southern Counties Aviation Co. are now flying from Port Meadow, Oxford. During their first three days, it rained more or less persistently and very little flying was done; however, in the short breaks between the showers several "stunt" and local flights were carried out, and the local cinema had several hundred feet of film exposed over Oxford and the surrounding district.

During their last two days at Winchester 72 passengers were carried. The flying ground there was Nursing Home Field, Teggdown.

Among their passengers was a patient from the adjacent Nursing Home. This lady started off with an ordinary flight, and was so enamoured of flying that she at once booked a "stunt" flight. This also pleased her and she was afterwards an almost daily client for stunt flights. Apparently flying hastened her cure, for shortly afterwards she left the Home and booked the machine to fly her to her residence, some fifteen miles away, indulging in several loops and a spin from 4,000 feet before landing there.

THE GLOBE TROTTERS.

THE AMERICAN EXPEDITION.

On Sept. 2 Lieuts. Smith and Nelson left Indian Harbour, Labrador, at 11.20 hours for Hawkes Bay, Newfoundland. A scheduled stop at Cartwright was omitted as they desired to take full advantage of the favourable weather conditions.

They arrived at Hawkes Bay later in the day, having to contend with fog and hard winds during the latter part of the journey. The head wind was so strong that the escorting destroyer was able to keep the aeroplanes in sight for nearly an hour.

On the following day they left for Pictou, Nova Scotia, at 10.12 hours. At 13.00 hours they ran into heavy rain in the vicinity of Cape Ray, but were able to make Pictou nearly six hours' flying arriving at 16.30 hours.

At Pictou they were met by representatives of the Canadian Government, Navy and Militia and various local dignitaries.

A third Douglas Cruiser piloted by Lieuts. Wade and Ogilvie rejoined the expedition at Pictou and will continue its flight until its finish.

On Sept. 5 the three Douglas Cruisers left Pictou at 10.00 hours for Boston, but they were forced down by fog at Cape

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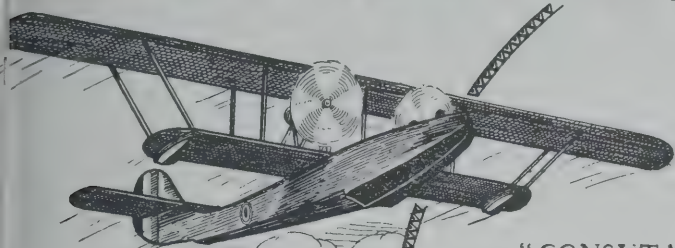
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Titanine Schemes were employed on nearly all the winning machines at Lympne, October, 1923.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Bay, Maine, 130 miles from Boston, this being their first contact with American soil, or rather one should say, water.

They stayed at Casco Bay until midday the following day awaiting petrol and oil supplies.

A squadron of 13 Army Air Service aeroplanes led by General Mason Patrick, Chief of the U.S. Army Air Service, which was to meet them half-way, picked them up and the 16 aeroplanes made the remainder of the flight to Boston in formation.

At 14.00 hours on Sept. 6 the three seaplanes alighted in Boston Harbour and taxied to their moorings to the accompaniment of guns from the forts and the Navy Yard, factory whistles, ships' syrens and the cheers of a huge crowd of 20,000 people.

Here they were officially welcomed by Gen. Mason Patrick, admirals, generals and civic authorities. Later they were taken to the State House where they received the State's official welcome and were presented with swords, silver pilot's badges and massive silver bowls.

Sq. Ldr. MacLaren made a special journey to Boston in order to welcome the Americans on behalf of the late British Expedition.

The three machines left Boston on Sept. 8 and at 15.00 hrs. the three Douglas Cruisers accompanied by a squadron of Army aeroplanes flew over New York subsequent to landing at Mitchell Field, Mineola, L.I.

Here approximately 30,000 people had assembled to greet them and on landing they were given a rousing reception. An elaborate programme had been arranged in their honour by the New York City officials.

H.R.H. the Prince of Wales was present to join in the welcome, but only as a private person, leaving it to Sir Esmé Howard, the British Ambassador to the United States, representing H.M. the King, to convey the heart-felt congratulations and good wishes of the whole of the British Empire.

The British Expedition.

Sq. Ldr. A. S. MacLaren together with the rest of the personnel of the Expedition reached Vancouver on the s.s. Thiepval on Aug. 20. They brought with them the remains of the Vickers Vulture G-EBGO together with its Napier Lion engine, which engine incidentally gave no trouble whatever, the crash having been caused purely by bad weather. The machine was taken to the R.C.A.F. Jericho Air Station whence it will be shipped to England. Thus the machine will have circumnavigated the Globe though not in the same manner as at first intended.

A small portion of the machine reached the office of THE AEROPLANE by post last week, with the intimation that the rest would follow "under separate cover."

Mr. MacLaren and his associates were entertained by the Canadian Club in Vancouver on Aug. 21 and went across to Vancouver Island to Victoria, the capital of British Columbia, in the evening to meet the high officials of British Columbia. They returned next day and lunched with the Air Force Club of British Columbia on Aug. 25.

Sq. Ldr. MacLaren in an interview with a Vancouver newspaper said:—

It is a foolhardy business to attempt to cross the Pacific by way of the Kuriles and Aleutians without at least two ships as escorts. We encountered impossible weather conditions. You hear many speak of fog in England. I myself have flown often in so-called fog, but the fog of the Kuriles is most unbelievable. Day after day we never got away from it. It was absolutely impenetrable.

To attempt to fly this route in summer months is utterly impracticable. The escort of two vessels is essential, I consider, for two reasons:—

First, weather reports from ahead are essential. One vessel must be ahead and send back reports while a second is needed near the

plane to receive them. So fickle is the weather that when a plane is made on a flight it may be a fine clear day, but before reaching your destination you may find utterly impenetrable fog barring your path. If there is only one escort ship, the plane itself must be equipped with wireless receiving apparatus with a range of 300 to 350 miles, which means, of course, adding seriously to the weight of the machine.

In the second place, if you come down anywhere in the Bell Sea Archipelago without vessels at hand you haven't a dog's chance. Practically the whole archipelago is uninhabited, and even if you are lucky enough to land safely you might easily die of starvation.

PERSONAL NOTICES.

DEATHS.

SHELLEY.—On Aug. 30, suddenly, at Holme-next-the-Sea, E. M. Shelley, Lt.-Col., M.C., O.C. 26th Air Defence Brigade, aged 42.

SPRINGFIELD.—On Sept. 4, Cecil Montague Oakes Osborn Springfield, late Plt. Off. R.A.F., younger son of Captain C. O. Springfield late R.E., and Mrs. Springfield, of West Mersea, Essex, and grandson of the late Sir August Oakes, C.B., and Lady Oakes, aged 22.

Mr. Springfield passed out of Cranwell in December, 1921, and Mar. 7, 1923, was posted to No. 5 Squadron at Quetta. Shortly after arriving in India he was seriously injured in a crash. In October of the same year his name appeared in the non-effective (sick) list at the R.A.F. Depot. On Oct. 15, 1923, he was posted to 24 S. but in May, 1924, he retired from the Service.

FORTHCOMING MARRIAGES.

BIRKBECK—MOXON.—The engagement is announced between Flt. Lt. Robert Alexander Birkbeck, D.F.C., of the R.A.F., and the late Major V. M. Birkbeck (Royal Scots) and Mrs. Birkbeck of Stackhouse, Bournemouth, and Mary Neville (Molly), only daughter of Mr. and Mrs. Reginald Moxon, of Albert Hall Mansions, Kensington.

CORCOS—NISSIM.—The engagement is announced between Montie Corcos, late R.A.F., youngest son of the late Mr. M. Corcos and of Mrs. Corcos, of Mogador, and Edna, younger daughter, the late Mr. and Mrs. R. M. Nissim, and granddaughter of Sir Sassoon David, Bt., of Bombay.

MONTGOMERY-MOORE—MEEK.—An engagement is announced between Flg. Off. R. J. Montgomery-Moore, only son of the late Mr. and Mrs. R. T. Montgomery-Moore, of Auchincloy, Co. Tyrone, and Marjorie Woodman, second daughter of Mr. and Mrs. Herbert Moore of Hull.

SORLEY—GAYFORD.—A marriage has been arranged between Mr. Sorley, D.S.C., Flt. Lt., R.A.F., younger son of the late J. G. Sorley and Mrs. Graham Sorley, of Sevenoaks, Kent, and Mary Eileen Gay, elder daughter of the late E. R. Gayford and Mrs. Gayford of Hadleigh, Suffolk.

MARRIAGES.

BARTLAM—SPENCER.—On Sept. 3, Charles R. Bartlam, only son of Mr. and Mrs. C. R. Bartlam, The Corbyn, Torquay, to E. Tassina, only child of the late A. C. Spencer, Esq., Aeronautics, Mrs. Spencer, Miramar, Lee, N. Devon.

BIRTHS.

LOCKWOOD MARSH.—On Sept. 1, at Woking, to Lt.-Col. and Mrs. W. Lockwood Marsh—a son.

MALTBY.—On Aug. 26, at The Croft, Wenloer, to the wife of Sq. Ldr. P. C. Maltby, D.S.O., A.F.C., R.A.F.—a daughter.

PATTINSON.—On Aug. 29, in London, to Mabel (née Capper) of Wing Commander L. A. Pattinson, D.S.O., M.C., D.F.C.—a daughter.

PENDAVIS.—On Aug. 16, at the Nursing Home, Hatch, to the wife of Flt. Lt. H. V. Pendavis, D.S.O., a daughter (prematurely).

PURCELL CLARKE.—On July 21, 1924, at Kasauli, India, to the wife of J. H. Purcell Clarke, Esq., Royal Air Force—the gift of a son.

YOUNG.—On Aug. 31, at Clyde House, Ormond Road, Richmond, Surrey, the wife of Sq. Ldr. W. G. P. Young—a son.

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C. G. G. G.

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IN THE ADMIRALTY'S AFFLICTION.

There is on record the remark of a witty woman who said:—"I love a manly man. And I adore a womanly man. But I cannot stand a boily boy." The aphorism now reminds one of the Admiralty, which at intervals develops a species of anti-R.A.F. inflammation which may, it be allowed to spread, affect deleteriously the body politic.

As sure as Parliament is about to re-assemble the daily sheets break out in a rash of pro-Navy anti-R.A.F. agitation. Generally the rash is heralded by a kind of dull subcutaneous swelling in the *Morning Post*, which now suffers from a species of chronic anti-Air Force ma. And this in due course seems to infect other papers with a superficial outbreak. But the whole thing originated in the boiling of the blood of the hot-heads at the Admiralty.

The latest infection has affected the *Daily Express*, which has always in the past been friendly to the R.A.F. But on Sept. 12 it appeared with a huge plastered two-column leading "FLEET AIR ARM CRISIS," with an almost daily irritant sub-head "ADMIRALTY DESIRE SOLE CONTROL," followed by scare paragraphs and headings involving altogether ten different sizes or kinds of type in a couple of columns. Evidently the paper was suffering from acute inflammation at the time. And the tone of the article distinctly showed its infection from the *Post*.

The arguments in all these outbreaks are always the same. One need only mention that they are based on the alleged facts of dual control. That is to say Air Force personnel on board ship are under the Navy for discipline and partly operations and under the Air Ministry for administration, promotion, pay, etc., and cannot perform any flying operations without orders from the senior Air Force officer.

The Navy in fact wants its own Air Service, as in 1914. Which is natural. And if we could spare the money it would be worth while to let it have its Air Service just to see what kind of mess it would make of it.

But for the Navy's own sake we must keep its Fleet Air Arm out of the clutches of the Admiralty, at any rate until the present generation of senior Naval Officers of the rank of Post Captain and upwards are dead and gone. If they are allowed to handle the Fleet Air Arm the flying personnel would all expire before the demise of the aforesaid senior officers, merely because the orders given by the R.A.F. if obeyed would result in crashing all the flying personnel and most of the personnel in a very few months.

Meantime the R.A.F. is very kindly training a large number of young and potentially intelligent Naval Officers to understand and, where individually competent, to handle aircraft. And when they are sufficiently grown in rank and intelligence, they may be permitted to have a Fleet Air Arm of their own.

The Admiralty on Sept. 12 informed the Press Association that the "authorities had no knowledge of the serious controversy which . . . was said to be in progress between the Admiralty and the Air Ministry." That is probably quite true. The First Sea Lord, Admiral Beatty, and the Civil Lords seem to be quite resigned to the decision given early this year on the advice of Lord Weir's Committee and accept the present arrangement with good grace.

But there is another faction, the chief of which one believes is Admiral Sir Roger Keyes, which, in spite of having ignored and condemned aircraft during the War 1914-18, now wants complete control not only of the Fleet Air Arm but of all sea-air patrols working from the shore. Which is absurd and would be dangerous to the Nation if permitted.

One does not suggest that Sir Roger Keyes himself inspires the *Morning Post* and the cheaper papers. But their views are those which he holds and does not hesitate to express. And doubtless they percolate from him to the papers. Therefore one does suggest that if Sir Roger cannot accept the ruling of His Majesty's Government, in confirmation of the Weir Committee's Report, the proper thing for him to do is to resign and thereafter appear openly as a Service politician or sea-lawyer.

In the meantime those who support the existing system are frequently met with the question "Why should not the Navy have its own Air Service?" That question is difficult to answer without going into a long dissertation on what the Navy did not do in the "Great War" and on the incompetence of Senior Naval Officers and on the ham-handedness of ancient mariners and so forth, which the average Englishman, suckled on a belief in the Navy as our First Line of Defence, finds difficulty in believing. Therefore one offers to the readers of these notes a simpler answer to that question, which is the complementary question:—"Why should not the Air Force have its own Navy?"

Certainly the Air Force could not do worse with a Fleet of its own than the Royal Navy does with itself. So why not let the Air Force have full control of its aircraft-carriers and let them merely co-operate with the Navy's Fleet when necessary? At other times let them cruise round the World, as did a squadron of the Navy lately, not merely "showing the Flag" but showing British Air Power.—C. G. G.

ON R.A.F. ACCIDENTS.—II.

Among papers which have laid themselves out to make the British Public's flesh creep is the *Daily Express*, which on Sept. 3 published an article under the cheery title of "Angels of Death" by Ex-Squadron Commander who delivers himself of the statement that recent accidents in the Air Force are in his opinion due to one or more of the following reasons:—"Insufficient flying instruction. A low standard of technical ability among the air mechanics. And the unavailability of army routine in a flying service."

Last week one explained that possibly some accidents might be due to defective instruction but that even with defective instruction the stall-and-nose-dive type of accident can be avoided by using machines that do not nose-dive when stalled. A large amount of instruction will stop an occasional accident in the existing types of machines.

Even the best of pilots in an effort to reach a good piece of landing ground will occasionally get his machine below stalling speed and be killed in a nose-dive. But one is certainly in agreement with him in the statement that with proper instruction there would be far less accidents.

The charge that the air mechanics are incompetent was made enough a year or two ago, as one explained last week. Evidently the ex-Squadron Commander's knowledge is not up-to-date.

There is to a certain extent correct in saying that the star fighting pilots who during the war were sent home to act as instructors in flying schools were often very poor instructors because they did not themselves know how they

flew nor how to instruct others. He says that these men flew naturally and had not the ability to be successful instructors.

THE WAY THEY HAVE IN THE ARMY.

Evidently he was in the Naval Air Service for he decries Army routine and advocates a return to the system of the old Naval Air Service. Anybody with any sense of law and order who knew the R.N.A.S. and the R.F.C. in the days before the R.A.F. came into being must recognise the fact that the R.N.A.S. as a rule managed to get its job done by sheer brute force and ignorance, whereas the R.F.C. was quite reasonably efficient in spite of being a purely war-time production with very little of the training and tradition of the Army.

He is also pleased to jeer at many of the things which make for good moral and discipline in the Air Force. For example he says that many Commanding Officers spend much of their time away from their stations playing polo and other games and trying all the time to ape the Army. Here he is entirely wrong, for nothing is better for the R.A.F. than the sporting spirit of the Services and sufficient competition with the other Services in sport.

He also objects to the Army system of court-martial as against the system of summary punishment used in the Navy. Those who know the two Services will recognise the fact that the Army court-martial is the fairest form of trial in the World whereas the summary punishment of the Navy frequently leads to rank injustice, as it depends too much on the nerves and liver of the officer in authority.

One has only to compare the moral of a good regiment in the Army in which the officers take a personal interest in their men with the feelings of the average blue-jacket towards his officers to see how much better the Army system is than the Navy system.

Here in fact is one direction in which the R.A.F. does need reform. There is *not enough* of the Army system in it. The men of the R.A.F. are shifted about, apparently haphazard, from squadron to squadron and from station to station with the result that they never get to know their officers as they should and never develop a personal affection for them as do the men of a good battalion in the Army where officers and men live and work together year after year as one big family.

In the R.A.F. to-day officers and men shift about from squadron to depot and depot to squadron just as the officers and men of the Navy shift from ship to barracks and barracks to ship, and lose the personal touch which makes the Army such a wonderful fighting machine.

Quite a long time ago the Chief of the Air Staff said in a speech that he hoped to make the R.A.F. squadron one family like the Army Battalion. The Personnel Department at the Air Ministry seem to have been pretty successful in defeating this hope up to the present. Also the traditions of the great war-time squadrons have been lost by altering their equipment so that famous scout squadrons have heavy machines and famous bombing squadrons have to fly single-seaters. Which is all wrong.

THE RETORT DISCOURTEOUS.

That however has nothing to do with the actual accidents of the Air Force and so far as accidents are concerned one is inclined to agree with a Mr. Douglas Stephenson who deserves full marks for a letter in the *Daily Express* of Sept. 4 in which he said:—

Safety may be very well for civilian flying but if the Air Force is to be of anything more than earthly use as a fighting unit each cadet will take "Safety last" for his motto and in a spirit of youthful derision, will paint on the fuselage of his machine the title of Ex-Squadron Commander's article, "Winged Death."

Although one is naturally wishful to see as few accidents as possible in the R.A.F. one quite agrees with Mr. Stephenson, whose letter is in the cheerful spirit of the old days when as a pupil was about to start on his first solo flight his friends would entreat him to make a will allocating to each of them certain of his belongings as mementoes of his brief career. It was so encouraging to a young pilot when his friends used to ask him who could take possession of his motor-bike after the crash.

Apparently Mr. Stephenson succeeded in treading heavily on Ex-Squadron Commander's ingrowing dignity, for on the following day the letter could find no better retort than:—

I regret his suggestion that my views should be treated with derision. This disrespect for seniors and for superior knowledge has always tended to retard the progress of the Royal Air Force.

Here incidentally one is a little inclined to agree with Ex-Squadron Commander in that one would like to see more respect for seniors in the R.A.F. But at the same time it does rather look as if Ex-Squadron Commander had himself suffered from inability to maintain discipline in his unit.

WHAT "STALLING" MEANS.

Lastly one may turn to that very good friend of Aviation the *Evening Standard*, which when it began the agitation about the R.A.F. paid one the compliment of publishing one's views at some length explaining that non-stalling machines and parachutes were the best preventative for the majority of fatal accidents in the R.A.F.

Incidentally one would like to express one's thanks to that member of the Staff of the *Evening Standard* who transmuted into print the views which one expressed verbally. One has never come across an expression of technical opinion condensed for public consumption with such accuracy and freedom from distortion.

The views which one then expressed seem unfortunately to be contrary to those of Captain Geoffrey de Havilland who on the following day was reported in the *Evening Standard* as saying:—

I do not agree that a non-stalling aeroplane would solve the problem and there are no signs yet of one being produced. After all you might just as well try to produce a car that will not skid. If a machine will not stall it is a very bad one for stalling undoubtedly has its uses. It is true that stalling is the cause of most of the accidents. I believe that more than 90 per cent. are traceable to this cause. But does not that indicate more than anything else the necessity for close attention at all times to the air speed indicator? That is the point I have always emphasised. A close watch is absolutely essential. By means of the indicator you can see at once whether speed is being lost at a critical moment. Neglect of the indicator's message means stalling and the real remedy would appear to be to watch the indicator and to be guided in your action by what it tells you.

It might seem as if this were a direct contradiction of one's own views. But one believes that the difference is rather in

the interpretation of the word—"stalling" in itself is absolutely non-technical.

The British Standard Glossary of Aeronautical Terms issued by the British Engineering Standards Association says:—

Stalling speed: The air speed corresponding to the maximum coefficient of an aeroplane.

As a member of the sub-committee which produced the glossary one confesses that this definition is not very lightening except to those with technical training. But into perfectly plain language it means that the "stall speed" is that speed of motion through the air at which aeroplane's wings cease to maintain their lift. Consequently and strictly speaking any machine which begins to stall through loss of flying speed has been stalled.

Therefore Captain de Havilland is quite correct in saying that there are no signs of non-stalling aeroplanes being produced. He is equally correct in suggesting that one could never produce a car that would not skid. But just as it is possible to produce a car with four-wheel brakes and proper adjustment of weights and perfectly designed steering which will never skid dangerously unless something breaks so it is possible to produce an aeroplane which will not become dangerous when it stalls but will merely sink steadily like a parachute while at the same time remaining under control.

THE COMMON INTERPRETATION.

When any aviator talks in the ordinary way of stalling he intends it to be understood that the aeroplane which is being discussed will nose-dive, and will probably spin as well, entirely out of control until it has fallen so far that it has picked up flying speed and can be got under control again. It is in this consequent nose-dive and, or, spin that the fatal crash occurs.

Given an aeroplane which instead of nose-diving after getting out of control merely sinks on an even keel or wobbles its tail down and then begins to glide slowly forward again as do the ordinary commercial Fokkers of to-day and the Fairey Flycatchers when they have their wing-flaps down and their tails up, it is impossible for the most careless pilot to produce a nose-dive by stalling.

Many an accident has occurred with modern aeroplanes through the pilot endeavouring to glide to a good place where to land after his engine has stopped or when it has ceased to pull properly. In his effort to prolong his glide he has stalled the machine, which has then dropped its nose suddenly and dived into the ground and killed him and his passengers.

With a non-stalling, or perhaps one had better call it deference to Captain de Havilland a non-diving, aeroplane would fail to reach his desired landing ground and would probably alight in the rough. Though he might wipe off his undercarriage or he might crash the machine entirely he would at any rate hit the ground more slowly and he would certainly hit the ground right side up and not on his nose.

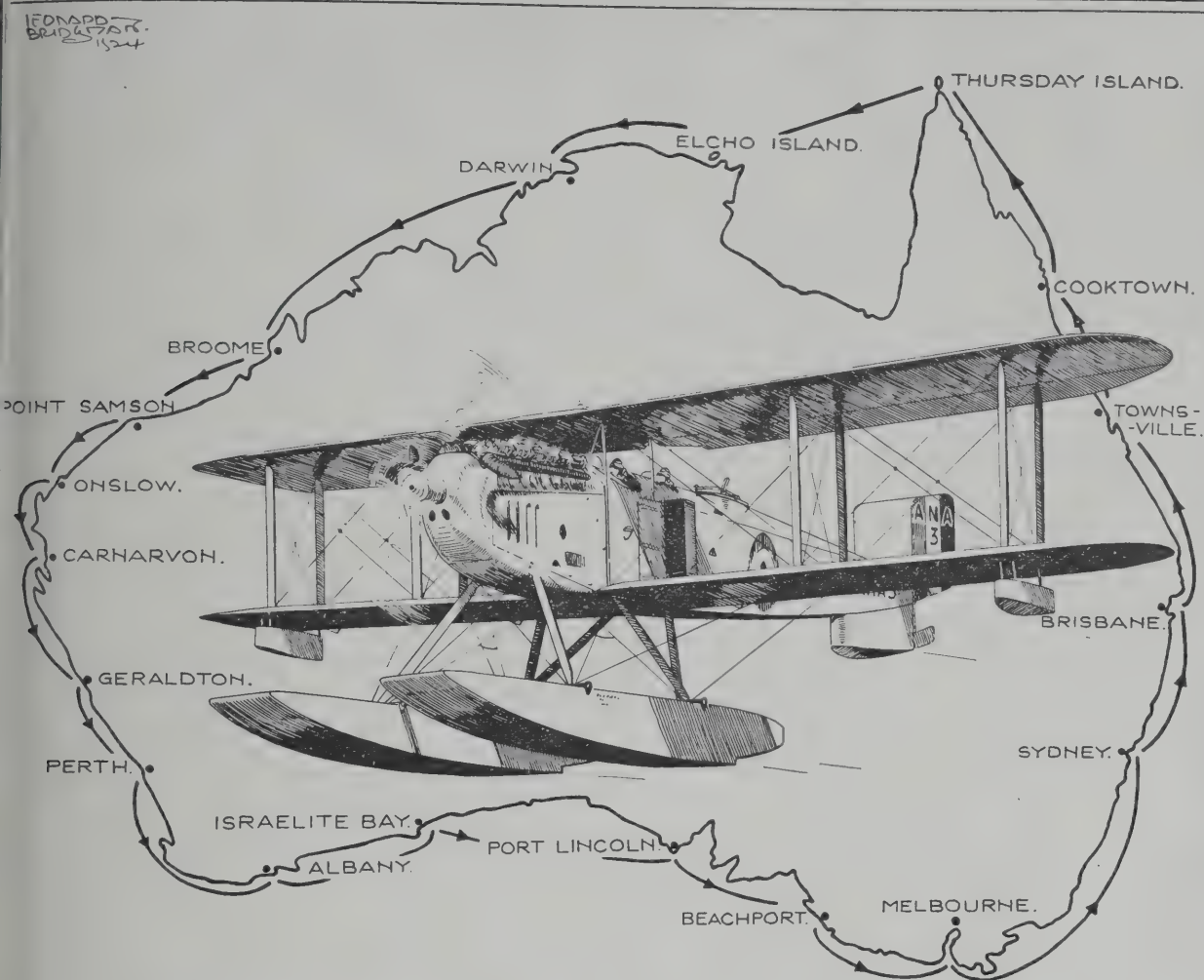
There is always the possibility that the pilot might stall on a hillside and roll over sideways or backwards and so be killed, but the chances would be that at the low speed to which these non-diving aeroplanes can be reduced even if he hit a wall or a rock or a tree he would not be hurt. And anyhow it is better to plant a machine on rough ground at 20 or 30 m.p.h. and wreck it than it is to try and get it into a landing ground with a machine which must be kept gliding at 60 or 70 m.p.h. and at that speed trip over a wall or a bank at the edge of the said landing ground in the effort to reach it.

Captain de Havilland's advice to pay closer attention to the air speed indicator is certainly excellent. But the best air speed indicator will occasionally go wrong and the best pilot will learn to fly by the feel of his machine and will never trust his instruments at all. Apart from that one imagines that quite a nasty crash might be caused by a pilot who tries to watch the speed indicator with one eye and tries to see where he is going with the other.

Captain de Havilland's flying experience is certainly long and probably greater than that of any pilot now flying and his connection with aircraft is just about as long as one's own, dating as it does from the year 1908. But with due respect to him and with full acknowledgment to the extremely fine aeroplanes which he has built in such vast numbers one still believes that the non-diving aeroplane will save more lives than any amount of good instruction and attention to speed indicators.

And one has some slight suspicion that Captain de Havilland himself is not quite free from a similar idea, for his latest machine which is fitted with wing-flaps comes just about as near being the ideal slow landing, non-diving aeroplane as anything that one has seen.

One only hopes that the demonstrations which it and other non-diving machines have given during the past few months will result in a goodly crop of orders to the Aircraft Industry from the R.A.F. for non-diving aeroplanes and that a great saving of lives will result therefrom.—C. G. G.



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THE ROYAL AIR FORCE.

The London Gazette.

R.A.F.: GENERAL DUTIES BRANCH.—The following Flg. Offs. are granted the hon. rank of Flt. Lt. (Aug. 21):—A. R. Prendergast, I. E. Brodie, G. McClintock, L. W. H. Phillips, R. S. T. Fleming.

Flg. Off. on probation M. J. Du Cray is confirmed in rank (July 23). The following Flt. Offs. are promoted to the rank of Flg. Off.:—J. S. Newall (June 26); F. J. O'Doherty (Aug. 9); C. G. H. E. Lumsden, B. J. Finn, F. C. Mason, F. B. Robinson (Sept. 9).

Flg. Off. C. H. W. Moller is restored to full pay from half-pay (Sept. 8). Flg. Off. E. M. Drummond (Lt., Black Watch), is re-seconded for two years' duty with the R.A.F. (Sept. 6). Flt. Lt. T. Q. Studd, D.F.C., is placed on half-pay, Scale B (Sept. 10). Sq. Ldr. N. M. Martin, C.B.E., is placed on the ret. list (Sept. 10). Flg. Off. C. J. Poole is placed on the ret. list (Sept. 10).

The S.S. Com. of Flt. Off. on probation L. M. T. Marescaux is terminated on cessation of duty (Sept. 10).

RESERVE OF AIR FORCE OFFICERS.—The following Offs. are confirmed in rank (Sept. 4):—Flg. Offs.—G. Clapham, A.F.C., C. J. Clark, A. G. Cooper, J. E. L. Skelton, G. M. Stephenson. Flt. Offs.—T. W. Ashton, F. Dismore, G. Goodall, T. A. Priestley, G. O. Wood.

Appointments.

Week ending Sept. 15.

GENERAL DUTIES BRANCH.—Squadron Leaders T. V. Lister, to R.A.F. Base, Leuchars, 10/9. F. G. D. Hards, D.S.C., D.F.C., to R.A.F. Depot (Non-effective Pool), on transfer to Home Estab., 22/8.

Flight Lieutenants J. W. Woodhouse, D.S.O., M.C., to No. 32 Sqdn., Kenley, 8/9. E. J. D. Routh, to R.A.F. Depot (Non-effective Pool), on transfer to Home Estab., 22/8. R. B. Sutherland, D.F.C., to No. 111 Sqdn., Duxford, 8/9.

Flying Officer L. J. Booth, to Electrical and Wireless School, Flowerdown, 10/9.

MEDICAL BRANCH.—Group Captain (Medical) N. J. Roche, O.B.E., to H.Q., Inland Area, for duty as Principal Medical Officer, 15/9. Flight Lieutenants (Medical) J. K. R. Landells, M.B., to R.A.F. Hospital, Cranwell, 16/9. J. A. Quin, M.D., B.A., to Central Medical Board, Hampstead, 5/9. Flying Officers (Medical) R. W. White, to R.A.F. Depot, 18/9. T. Glynn, M.B., to R.A.F. Depot, 30/8.

Flying Accidents in the Royal Air Force.

The Air Ministry make the following announcement:—

Public attention has recently been directed to the question of flying accidents in the Royal Air Force. In order to remove any misconceptions which may consequently have arisen, the Air Ministry point out that comparisons which have been made of the actual number of accidents during the last three years take no account of the increase in the size of the force during this period and the much greater amount of flying which is carried out in all units than was formerly the case.

During the period July, 1921, to July, 1924 the number of squadrons has been raised from 34 to 48 and in addition to this the average amount of flying time per pilot has increased by nearly 100 per cent. Again, owing to the expansion of the Royal Air Force now in progress and other factors, the number of pilots under training at the present time is larger than would be required for the existing 48 squadrons, and this has entailed a further material increase in the current volume of flying.

In consequence of these factors, whereas the actual number of accidents in the present year shows an increase upon the corresponding figures for 1923 and 1922, there has none the less been a continuous improvement during the last two years in the ratio of hours flown to fatal accidents. Thus the number of machine hours flown during the twelve months ending June, 1923, for each fatal accident showed an increase of over 47 per cent. as compared with the twelve months ending June 30, 1922. This improvement was more than maintained during the twelve months ending June, 1924, when there was a further increase of 7 per cent. in the number of hours flown for each fatal accident.

Comprehensive training in the air is essential in order to ensure the attainment of the high standard of skill demanded by active service conditions; in the absence of such training and of ample opportunities for subsequent flying practice, efficiency would be impaired to an extent which could only result in increased casualties in time of war.

These considerations are fully appreciated by the officers and men of the Royal Air Force, but those who are not cognisant of all the facts are naturally prone to draw erroneous deductions in regard to both personnel and material. As regards the latter, while the Air Force is gradually being re-equipped with machines of new design, there is no ground for suggesting that the older designs still in use are in any way unsafe or lacking in airworthiness.

Whenever an accident occurs no pains are spared to ascertain its causes; in addition to the Court of Inquiry convened by the unit concerned, in the case of all accidents at home, specially appointed officers are despatched to investigate every detail on the spot, and report direct to the Air Ministry.

The Secretary of State for Air.

The Lord Thomson, Secretary of State for Air, accompanied by Mr. C. L. Bullock, his private Secretary, and Sq. Ldr. R. Graham, of the Air Staff, will leave next week for a tour of inspection of the Royal Air Force units in the Middle East and Iraq. The outward and homeward journeys between Egypt and Iraq will be made by air.

Royal Air Force Cadetship.

The Air Ministry announces:—

A competitive examination for not less than 35 cadetships at the Royal Air Force Cadet College, Cranwell, Lincs., will commence on Nov. 18 next. The written examination will be held in London, and other centres in the United Kingdom selected by the Civil Service

Commission, but the oral tests in French and German and laboratory tests in Mathematics will be held in London only. The closing date of entry for this examination is Oct. 2, and no entry will be accepted under any circumstances after Oct. 16. Applications should be made to the Secretary, Civil Service Commission, Burlington Gardens, W.1.

It is to be noted that the age limits for the forthcoming and subsequent examinations have been amended to 17½ to 19½ years. Candidates must have attained the lower age and must not have attained the higher age on Jan. 1, 1925. No exception to these age limits in any circumstances be allowed.

The fees at the Cadet College are £75 a year and in addition a contribution of £30 is required before first joining and one of £20 at the beginning of the third term to cover the expenses of uniforms and books. Cadets receive pay at the rate of 5s. a day in their first year at the College and at the rate of 10s. a day in their second year. In addition an allowance of 1s. a day is made during college terms towards the cost of messing, washing, and laundry.

Reduced fees are payable in certain circumstances for the sons of officers and men of the fighting services. No contributions for uniforms, etc., are payable for King's Cadets or Prize Cadets. Former also pay no fees, the latter are received at the reduced rate of £20 a year. King's Cadetships may be granted to sons of officers who have died in action or in certain other circumstances and have their families financially reduced. Prize Cadetships (of which a limited number will be offered at the forthcoming examination) are awarded to successful candidates in order of merit at each examination. In addition one Wakefield Scholarship of the value of £75 tenable for one year will be offered for competition at the forthcoming examination among candidates whose parents or guardians are in certain circumstances.

This is the last competition which will be held under the present scheme of examination. Copies of the revised syllabus for the year 1925, and subsequent competitions may be obtained from the Secretary, Air Ministry.

The Fleet Air Arm.

The War Staff Course at the R.N. Collège, Greenhithe, which opened on Sept. 16 included Lieut.-Cmdr. J. Elmsley, A.F.C., who has been employed on Observer's duties in the *Argus*.

The Current Air Force List shows this officer ordered to the strength of the R.A.F. Base Leuchars for duty with the Flight on formation. There are now 22 officers R.N. serving with the R.A.F. as Observers.

According to *The Times* of Sept. 16 two more Commanders R.N., are to be lent to the R.A.F. for a course of instruction in air matters.

Commander C. M. Graham, promoted in June of last year, hitherto been serving on the Staff of the Director of Torpedoed Mining at the Admiralty. Commander C. F. Harris, promoted December, 1921, was until May last in the submarine service at Blockhouse, Gosport. In addition, Commander Ion B. B. Tower, R.N., who has just completed the Staff course and graduated "p.s.c." has been appointed for duty in the Deputy Directorate of Armaments at the Air Ministry.

A Turkish Raid in Iraq.

A *Reuter* message published in *The Times* of September 14 states:—

Baghdad, Sept. 14.—Martial law has been declared in the districts of Zakho and Amadia, in the North of the vilayet of Mosul, in consequence of a raid by Turkish irregulars. Aeroplanes dispersed the raiders with machine-gun fire, and their action was most successful.

An official statement issued by the Iraqi Ministry of the Interior states that the proclamation of martial law is a precautionary measure to prevent similar aggression in the future.

The R.A.F. establishment in Mosul at present consists of Wing H.Q., No. 6 (Army Co-operation) Squadron and an Armoured Car Coy.

The Defence of London.

The Times of Sept. 17 states:—

At a meeting of the Hornchurch Parish Council last evening, communication from the Air Ministry was laid before the Council seeking permission to divert certain footpaths which cross Adnams and Suttons farm at Hornchurch, the site which they have acquired for the erection of a large aerodrome.

The site is over 300 acres in extent, and it is intended to erect an aerodrome capable of accommodating at least 500 aeroplanes, a large force of pilots and mechanics. The aerodrome, which is situated midway between London and the East Coast, is supposed to be the nucleus of a scheme for the aerial defence of London. During the war the site was used as a temporary aerodrome, and pilots stationed there at the time brought down the first four Zeppelins in England.

British Aircraft in Afghanistan.

The Times correspondent at Simla in a message dated September 16 states:—

One of the airmen who have returned from Kabul, where they piloted the two machines purchased by the Ameer, gave an interesting account of his experiences.

The two aeroplanes, which were duly repaired so that they were in perfect condition, appeared in the place of the usual distinguishing mark, arrived at Kabul on Friday morning, and demonstration flights were given on that day and Saturday. The Foreign Minister, Mahomed, a genial man who was very keen to fly, obtained a promise from the airmen that he should ascend the first of the two machines on Saturday. Dressed in goggles and helmet he stood waiting



ARMSTRONG SIDDELEY

Aircraft Engines.

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THERE is no more rigid or thorough test for an engine than the Type Tests carried out under supervision of the Aeronautical Inspection Department of the British Air Ministry. Three times has the Armstrong Siddeley

"JAGUAR" Air Cooled Radial Engine

been submitted to this test and come out triumphant:—

June '22, Series II "Jaguar," 325 B.H.P., 50 hrs.

March '24, „ III "Jaguar," 360 B.H.P., 50 hrs.

August '24, „ IV "Jaguar," 385 B.H.P., 100 hrs.

On each occasion the engine has been run at the rated h.p. and for the number of hours stated—together with high speed and high power tests.

It will be noted that the duration of the latest test was 100 hours. The "Jaguar" Air Cooled Radial is

the first and only engine
to fulfil this test.

Other Achievements.

The King's Cup won with Armstrong Siddeley "PUMA" Engine. Fastest time with Armstrong Siddeley "JAGUAR."

Farthest North. Oxford University Expedition North Eastland. "LYNX" Engine beat Farthest North flying record—80.15.

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the acting War Minister, Abdul Aziz, unceremoniously removed Sher Mahomed's kit and placed it on his own person and took a seat in the aeroplane as his by right. Later, however, Sher Mahomed had a flight and amused himself by waving coloured handkerchiefs at his friends below.

The demonstrations, which were witnessed by the Ameer and by large crowds, showed that the Bristol Fighters were in perfect condition, the airmen bringing out all their points with the result that the Ameer decided to purchase. The airmen had an interview with the Ameer, who said that the British had rendered a great service to Afghanistan and decorated the officers with gold and the mechanics with silver medals.

[The curiously English mental processes of the Pathan are shown in this incident. One can easily imagine two genial Ministers of State arguing which of them by virtue of the seniority of his Department should have the prior right to test personally some new instrument of war. In a Mediterranean country each would stand on his dignity and the affair would become official or violently personal, whereas Nordics would treat it as a joke.—ED.]

The Fleet Air Arm.

The Times of Sept. 15 states:—

Gallantry medals, together with the Meritorious Service Medal, and the Long Service and Good Conduct Medal, awarded to men of the R.A.F. serving in H.M. ships, states a new Fleet Order, are to be presented by the commanding officer. The airmen's receipts are to be obtained and returned direct to the Officer in charge, Royal Air Force records.

An Award.

The King has granted unrestricted permission for the wearing of the following decoration conferred by the King of the Hedjaz for valuable services rendered in connection with the war:—

ORDER OF EL NAHDA, 4TH CLASS.—Lt. (now Flying Officer) W. G. Stafford, M.C., D.C.M.

Imperial Defence.

The Times of June 23 stated:—

Mr. L. S. Amery, in his lecture at the Philip Stott College on June 21 on "Imperial Defence," said the British Army had always been a small professional Army, working, as it were, as the spearhead of the Navy, and carrying the power of the Navy across the seas. Few armies had played a more determining part in history. The organisation of the Army had been based primarily on the purpose of maintaining the ordinary, everyday peace of the outer Empire against small local or frontier disturbances.

As regards the strength of the Army, we were back not where we were before the Great War, but where we were before the South African War. While it was perfectly true that we did not contemplate another great war in the near future, we hoped not in the lifetime of any one of us, yet the ordinary work of keeping together the Empire required a considerable force and might require greater force and greater readiness than in the years before the war. We ought so to organise that if war should come upon us we should be sure, not only of winning, but of winning in a reasonable time.

In future we must have an elaborate zone of air defence over all those parts of the country which were within 200 miles of an enemy's frontier. He did not believe aircraft would ever supersede the older arms. He believed that there would be a future for the airship as a supplement to our never-sufficient cruiser force.

Army Co-operation.

An Army Order issued on Sept. 12 states:—

There appears to be some misapprehension as to the occasions on which officers and other ranks may be required to go up in aircraft. Any officer, warrant officer, non-commissioned officer, or man may be ordered, as part of his military duty, to go up in the air, either as a passenger, when the flight is considered by superior authority to be necessary for some military purpose or training, or for reconnaissance purposes whenever military exigencies require it. Additional emoluments are not payable for such duty.

An A1 at Lloyd's Battery.

It is officially stated that the King has approved of the 159th (London) Anti-Aircraft Battery, Royal Artillery (T.A.), being in future designated the "159th (Lloyd's, City of London) Anti-Aircraft Battery, Royal Artillery (T.A.)."



The Air Force Club of B.C.

The Air Force Club of British Columbia, whose headquarters are at Vancouver, B.C., is going very strong at the moment. His Honour the Lieut.-Governor, the Hon. W. C. Nichol, has accepted the office of Honorary President, which is eminently satisfactory, and other important people in Vancouver have also joined the Club in honorary capacities, full members being of course confined to past and present personnel of the Royal Air Force and the Royal Canadian Air Force.

The active President of the Club, Major A. D. Bell-Irvine, is doing good work for the Club and his well-known energy and organising power is finding plenty of scope. One of the Club's most recent activities was to entertain to luncheon Sq. Ldr. MacLaren and the personnel of the British Warplane Flight on Aug. 25.

New members are joining the Club in satisfactory numbers, and it may well become not only an organisation of some weight on the Pacific Slope, but may be of definite military value in the future.

The New Zealand Air Force.

A *Reuter* message from Wellington (N.Z.) dated Sept. 13 states:—

Further developments of the New Zealand Air Forces are expected. The Government is to purchase aviation plant at Auckland for a base for sea and land planes. The majority of the Dominion airmen are already qualified Royal Air Force pilots.

R.A.F. SPORTS.

Cricket.

Lord Cowdray's XI (consisting of amateur and professional cricketers who have at some time served with the R.A.F.) was beaten by Hastings by the Rest of England by 4 wickets on Sept. 5, 6 and 7. The Rest of England made 367 in their first innings and 107 in the second. Lord Cowdray's team declared at 314 in the first innings, but only made 159 in the second innings.

Golf.

The R.A.F. Golf Championship was played at Sandy Lodge on Sept. 3, 4 and 5. Sq. Ldr. Hayward, in addition to leading the qualifying round on the first day, won the 36-holes scratch prize with an aggregate of 157, the 18-holes scratch prize with a card of 76, the best 18-holes prize with 37 + 1/2 = 37 1/2, and he tied with Flt. Lt. C. Boumphey for the 18-holes handicap prize with a net score of 77, and with Flt. Lt. H. H. Clarke for the 36-holes handicap prize with a net score of 159. Flt. Lt. H. G. Dushell, although he has only one arm, won the second division 18-holes handicap prize with 94 - 24 = 70.

The results of the second day's play were:—
FIRST ROUND.—Flg. Off. Gough beat Air-Commodore D. Munro by 6 and 5. Flt. Lt. H. H. Clarke beat Flt. Lt. D. Craig by 3 and 2. Lt. C. Boumphey beat Flt. Lt. E. A. Fawcus by 5 and 4. Sq. Ldr. C. H. Hayward beat Sq. Ldr. C. V. Parr by 4 and 3.

SEMI-FINAL ROUND.—Clarke beat Gough by 2 holes. Hayward beat Boumphey at the 19th hole.

Other results were:—18-HOLES BOGEY.—Senior.—Flt. Lt. C. Boumphey (scratch), 5 up; Flt. Lt. Clarke (3), 1 up. Junior.—Flg. Off. Pierce, 1 up; Flt. Lt. Quinlan (18), 1 up; Group Cmdr. Playfair (13), all square.

BOGEY FOURSOMES.—Flg. Off. Steggall and Flg. Off. Pierce (each 3 up); Wing Cmdr. Robinson and Flg. Off. Greene (13), all square.

Sq. Ldr. C. H. Hayward beat Flt. Lt. Clarke in the final round of the R.A.F. Championship over 36 holes at Sandy Lodge on the 5th day by 9 holes up and 7 to play. This is the third year in succession in which Sq. Ldr. Hayward has won this championship.

Altitude.

The Times of Sept. 13 states:—

Sq. Ldr. E. B. Beauman, Royal Air Force, with one guide, ascended the Weissmies (13,236 ft.) above Saas-Fee on Sept. 6 by a new route.

R.A.F. Housing.

A furnished cottage is to let at Old Windsor till next August or longer. There are seven rooms besides kitchen and bathroom and stable and garage. The equipment includes a company's water, electric light, slow-burning boiler, piano, plates and linen if required. The cottage is just off the Windsor-Staines main road, 20 miles from London. The service road is 100 yds. from house which stands in two acres of garden and is very near the river. Uxbridge 10 miles, Aylesbury 4, and Farnborough 16. Rent three guineas a week.

THE R.A.F. VISIT TO TUNIS.

A group taken on the arrival of the three Fairey III D. seaplanes from Malta. From left to right the photographs show: the British Vice-Consul, Mr. Drummond; Capitaine Durand of the French Service d'Aviation Militaire, Sq. Ldr. H. E. Watkins, A.F.C., R.A.F., Flg. Off. Mollard, R.A.F., the British Consul-General, Mr. McLeod, Flt. Lt. Watkins, R.A.F., Lt.-Ac. Anderson, R.A.F., the Senior Officer McKenzie, R.A.F. Sitting in front Commandant La Fargue of the Service d'Aviation Militaire and Lt. Bennett, R.A.F.

Reliability!

A 450 H.P. Napier is exhibited at Wembley—Exhibit 71, Palace of Engineering.

ONE Napier Engine in use by Imperial Airways, Limited, has covered—

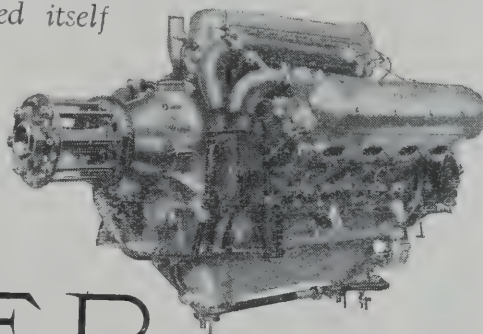
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New Light Aeroplane Engines.

The success or otherwise of the forthcoming light aeroplane competitions at Lympne will very largely depend upon whether the engines employed stand up to their work or not. The conditions imposed on the competing machines call for at least 10 hours' flying at the highest power that the pilot feels justified in extracting from his power-plant—which makes a very much larger demand on the engine than has yet been imposed in any previous contest for machines of this class. At the last year's meeting at Lympne the motor-cycle engines employed gave on the whole a surprisingly good account of themselves, and it will be extremely interesting thus to compare the behaviour of the Bristol Cherub which has been designed as an aero-engine by an aero-engine designer and has been submitted to a process of development under official auspices with the products of light-car and motor-cycle engine designers.

The "Cherub" will be the most extensively used engine in this competition but it will not by any means have the virtual monopoly which once seemed to be probable. The Cherub has already been described in these pages at some length, but a few notes concerning the other engines likely to appear should be of interest.

THE A.B.C. SCORPION.

This is the well-known A.B.C. light-car engine fitted with cylinders of reduced bore to bring it to within the 1,100 c.c. limit. The engine is of the two-cylinder opposed type, with steel cylinders, and overhead valves. In general arrangement and detail design it is almost exactly an enlarged replica of the little 395 c.c. motor-cycle engine which did so well in the Wren at last year's trials.

Except for the fitting of new cylinders and pistons, the only alterations made in the engine to change it from a car type to a light aeroplane engine are the fitting of a thrust race between the two roller bearings at the flywheel end, the fitting of an airscrew boss in place of the flywheel, and the changing over of exhaust and inlet valves by crossing the valve push-rods. These changes are precisely those made by Mr. Manning in the Wren's engine. A separate carburettor is fitted for each cylinder.

The engine has a bore of 87.5 m.m. and a stroke of 91.5 m.m., weighs 92 lbs. with carburettors, magneto and airscrew boss, and delivers 30 b.h.p. at 3,000 r.p.m.

This engine will probably be fitted to the Hawker machines, and judging from the way in which the very similar light-car engine stands up and delivers its power under the most brutal treatment it should give quite a good result when given reasonable attention.

THE ANZANI 1,100 C.C. TWIN.

This is an engine whose design is based on that of the well-known racing motor-cycle engine of the same make and size. For aeroplane purposes a spur reduction gear has been built-in to the crankcase. On general principles one feels that reduction gears are undesirable features on light-aeroplane engines, but for the purposes of this particular competition they are probably justified, as the performance called for involves running an 1,100 c.c. engine at r.p.m. appreciably too high for the best airscrew conditions. In other words the 1,100 c.c. limit is too low for the prescribed conditions of the test and the reduction gear permits the extraction of more useful power from the engine.

The engine is naturally of the overhead valve type and is an extremely well-made and finished piece of work.

THE BLACKBURN 1,100 C.C. RADIAL.

This is a three-cylinder radial specially prepared for the Lympne competitions. It has three cylinders which appear to be identical with those of the "Tom-Tit" 698 c.c. type, equally spaced round a large aluminium crankcase to the bottom of which there is fitted a large ribbed oil sump and cooler combined. It is understood that the engine is so designed that the present cylinders may be removed and three of larger bore fitted in their place. The engine thus becomes one of 1,500 c.c. Crankshaft, big ends and valve gears and so on it may be presumed are designed with a view to these larger cylinders, and the engine is therefore somewhat heavy as an 1,100 c.c. type.

The bore and stroke are 71 x 88 m.m., the weight is approximately 112 lbs. and the engine is rated at 30 b.h.p. at 3,600 r.p.m.

An Australian Flying Boat.

There is much talk in Australia about a new flying boat designed by Major Wackett, D.F.C., A.F.C., of the Royal Australian Air Force, which is being built at the Randwick Experimental Station. The machine is said to be of very unorthodox design, but if she comes up to expectations she will be a distinct advance in flying boats.

She is intended to lift four persons and baggage and to do approximately 90 m.p.h. with a Siddeley Puma engine. Details of her design are awaited with interest. Meantime one wishes Major Wackett every success and hopes that as a designer he may be as successful as have been the Australian circum-Continental aviators as aviators.

Light Aeroplanes in Australia.

Mr. Lebbaeus Hordern, who is one of the richest men in Australia and who began his connection with aviation about 1912 when he imported a Maurice Farman with floats to Australia, is still apparently interesting himself in flying. One gathers that he has put up a prize for a light aeroplane competition in Australia which will take place in October or November. There are to be five days' flying in this competition at Richmond, about 40 miles from Sydney.

The Australian Aerial Derby is to be flown at Masseyville on the sixth day.

It is rumoured that about 80 light aeroplanes are to be entered, but the correspondent who transmits the statement admits that it was made rather late in the evening. It is however certain that a large number of machines will compete. Some of the engines are being built in Australia, but in most cases engines which were built originally for motor-cycles will be used.

Pilgrim's Progress.

Mr. Noel Pemberton Billing, who has been devoting himself to the perfection of gramophone records during the last few years, is apparently still taking a lively interest in aviation. He is now in Australia on gramophone business and in the course of an interview with the Australian Press he has been endeavouring to impress on the people of Australia that their far their best and cheapest defence is aerial.

He has been using the excellent if old argument that a machine which costs £2,000 can put out of action a battleship which costs £2,000,000. Also he has been pointing out that Australia could have a whole fleet of aircraft for the price of building and maintaining the two cruisers which she proposes to build. Furthermore he has produced the very sound argument that such a fleet of aircraft would actually be able to attack capital ships from which a cruiser could only run away.

A Dutch Test.

The Koolhoven monoplane, the F.K.31, turned out by the Nationale Vliegtuig Industrie of the Hague with a Jupiter engine has recently been tested with a Lumière airscrew designed by M. Louis de Monge. The recorded speed over one kilometre was one kilometre at 146 m.p.h. and 24 kilometres were covered at 138 m.p.h. The climb to 10,000 feet was 10 minutes 11 seconds with full military load.

Under the Dutch Military test the machine was given marks for controllability and was actually stunted more violently than a single-seater. It loops, spins and rolls very quickly and it has done 2½ rolls without a stop.

A Swedish World's Record.

According to the *Svensk Motortidning* on Aug. 18 Lieut. Berndt Krook of the Swedish Naval Air Service broke the World's Height Record for seaplanes by reaching a height of 5,600 metres (18,766 feet) in a Heinkel S.1 monoplane-seaplane (360 h.p. Rolls-Royce Eagle IX engine) with 250 kilos. useful load.

The machine used was a monoplane seaplane built by the Svenska Aeroaktiebolaget of Stockholm to the designs of Herr Heinkel, the original designer of the famous war-time Brandenburg seaplanes.

The fitting of a Rolls-Royce Eagle IX Engine enabled the large and heavy two-seater machine to exceed the previous record set up by M. Laporte on an F.B.A. flying boat nearly 2,000 metres (6,560 feet), altogether an excellent performance when it is remembered that the S.1 was primarily designed as a heavy-duty seaplane.

New Companies

TITANINE-EMAILITE, LTD. (200,204).—Private company. Registered Sept. 3. Capital £20,000 in £1 shares. To acquire the premises Booth Road, Colin Deep Lane, Hendon, and the business carried on there by Titanine, Ltd., the goodwill thereof and all pending contracts, and to carry on the business of manufacturers of and dealers in varnish, dope, paint and other compositions for application on aeroplanes, seaplanes, hydroplanes and aircraft of all kinds, chemicals, cements, paint removers, adhesives and disinfectants. The number of directors is not to be less than 3 nor more than 5; first are: Sir William Maxwell, Wraysbury, Bucks, director; T. W. Ward, "Helenslea," Finchley, N.W.1, director (managing and permanent director); S. E. Groves, address not stated.

The said T. W. H. Ward shall during his life and so long as or his wife or issue hold thirty-three and one-third per cent. of shares issued, have the right of appointing two directors in rotation every year to act with him on the board, and the International Paint and Compositions Co., Ltd., shall also, if, and so long as it shall hold in shares either by itself or its nominees thirty-three and one-third per cent. of the capital for the time being issued, have the right of appointing the remaining two directors every year. Qualification of T. W. H. Ward 1,000 shares, of other directors 1 share. Remuneration (except the said T. W. H. Ward) £100 each per annum. Solicitors, L. A. I. North, 4, Stone Buildings, Lincoln's Inn, W.C. Registered office, 175, Piccadilly, W.1.

THE CORNWALL AVIATION CO., LTD. (200,193).—Private company. Registered Sept. 3. Capital £100 in 1s. shares. To carry on operations in connection with the aerial transport of passengers, mail, chandise, etc. The first directors are: P. Phillips, 19, Bodmin Road, St. Austell, motor engineer; F. L. Hill, Park House, Truro Road, St. Austell, motor engineer. Qualification £5. Secretary, F. C. Claughton, Higham and Hubbard, Lloyds Bank Chambers, Truro Road, St. Austell. Registered office, Truro Road, St. Austell, Cornwall.

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Aero Engines

THE BEST IN THE WORLD

Some extracts concerning the recent flight of 8,500 miles round Australia from "The Aeroplane" of May 22nd, 1924, entitled

"ON THE AUSTRALIAN TRIUMPH"

"A performance which may fairly be claimed as the finest flight in the history of aviation."

"The durability and reliability shown by the Fairey seaplane and the Rolls-Royce engine have established once more the reputation of English aircraft design and material in the esteem of the aeronautical authorities of foreign nations"

RELIABILITY

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England to Australia	11,500 miles
England to S. Africa	6,281 miles
England to Sweden (and back)	2,450 miles
England to Constantinople	2,160 miles
Across the Atlantic	1,890 miles
England to Finland	1,100 miles
England to Warsaw	1,050 miles
England to Madrid	855 miles

These flights were accomplished without any change of engines en route

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THE AERONAUTICAL RESEARCH COMMITTEE'S ANNUAL REPORT

It becomes increasingly difficult to find any new comment to make upon each successive annual report of the Aeronautical Research Committee. This year, as is usual, the report records steady progress along the lines of earlier reports. The Committee express their approbation of the recent reorganisation of the Directorate of Research at the Air Ministry as likely to increase the attention officially bestowed on scientific work, and hope that this will assist in the acceleration of progress.

AERODYNAMICS.

As is well known during the past few years the aerodynamical work undertaken by the Committee has been mainly directed towards the problems of stability and control with special reference to the "spinning" problem. It is announced that in the future a greater degree of attention is to be bestowed on performance, particularly in regard to high lift and to high-speed wings.

It would appear that this renewed attention to performance is largely the result of a somewhat belated recognition of the existence of very large scale effects with certain thick or otherwise abnormal types of wing, though it is also influenced by the fact that practicable aircraft of other than the thin-winged biplane type have appeared in some quantity during the past few years. Provided that the Committee will bear in mind that its business is that of elucidating the reasons for the curious behaviour of aerofoil sections or of the complete aeroplanes in regard to such matters as stalling and scale effects this extension of their interest is to be welcomed.

A good deal is made in the Report of work done in verifying the theory of aerofoils developed at Göttingen by Prof. Prandtl and his colleagues. This work however appears to have been valuable mainly in assuaging the incredulity of the Committee rather than in extending the theory or its applications.

THE LIGHT AEROPLANE.

The Committee is pleased to extend its official approbation to the light aeroplane, which it welcomes "as providing a possible avenue for rapid and relatively inexpensive trial of new characteristics of certain types of control." A special meeting was held by the Control and Stability Panel of the Committee to discuss the characteristics of light aeroplanes with the pilots who flew the machines at the Lympne competitions last year. As the majority of the pilots involved had flown only one type the panel found it difficult to co-ordinate the views expressed. To overcome this difficulty the Air Ministry arranged to order five such machines and to allocate them to Martlesham and Farnborough for test. So far as it is possible to discover from external evidence there has been little either of rapidity or of inexpensiveness over this particular series of light aeroplane tests.

Some degree of impatience with the slowness of experimental work on full-size flying-boat hulls at Grain and Felixstowe is expressed in connection with the work of the Seaplane Panel of the Committee.

ENGINES.

In regard to power-plant reliability, the Engine Sub-Committee has agreed that an increase in the weight/h.p. ratio of present engines is not practically permissible and that the improvement of design in detail and the use of better materials is the most promising path to improved reliability. It is held that experience gained by continuous running of engines to the point of failure will greatly assist in improving design and the Committee have accordingly recommended that development tests should be carried out on types which have successfully passed the normal type tests.

Researches have been continued on detonation, supercharging, the use of stratified charges, on sleeve valves, big-end bearings and on oil cooling have been carried on during the year. Tests have been made by both the R.A.E. and Ricardo and Co. with tetra-ethyl lead—an anti-knock "dope" somewhat widely advertised in America. This compound is extremely effective in preventing detonation, but is highly poisonous and produces a deposit which in one case jammed the engine after a short time. The Air Ministry laboratory is undertaking a search for a substance equally effective in preventing detonation but without the disadvantages of tetra-ethyl lead.

During the year under review the R.A.E. succeeded in obtaining indicator diagrams from an aero-engine in flight. This success should lead to a better knowledge of the performance of engines at altitude and should therefore lead to results valuable to the designers of both engines and aeroplanes.

MATERIALS.

The work of the Materials and Chemistry Sub-Committee is divided between three panels. Of these the first (Elasticity and Fatigue) has been very active in investigating the fatigue of metals, without, however, arriving at anything like a satisfactory theory of the observed phenomenon.

The Light-Alloys Panel has investigated the age-hardening qualities of certain alloys closely related to the duralumin

group, the strength and hardness of magnesium alloys at high temperature, and has studied protective coatings for aluminium and aluminium alloy castings. An electrolytic zinc coating has been successfully deposited at the R.A.E. and a nickel coating at the Research Department Woolwich Arsenal.

The Fabric and Dopes Department have had under trial a number of new methods of stringing fabric to the ribs particularly for use in the slip stream region. The only definite conclusion arrived at in this connection is that braided twine is superior to kite cord for this purpose as it is less liable to fraying.

A series of tests on the liability to ignition of doped fabrics has led to the conclusion that pigmented nitro dope is liable if at all more dangerous than acetate dope and that superior tautening qualities of the nitro dope will find some application.

ACCIDENTS.

The Accidents Investigation Sub-Committee has continued the analysis of the causes of power-plant stoppages as shown in returns rendered by R.A.F. squadrons. The Committee express the opinion that the problem of preventing recurrent types of such stoppages is mainly to be solved by securing a higher standard of technical knowledge in all ranks of the R.A.F. and note that the Air Council agree on this point. Apart from this problem of potential accidents in the form of engine stoppage the number of accidents calling for special investigation has been small.

One case of breakage in the air was investigated—leading to the death of Major Foot in the Grosvenor Cup Race last year. A fatigue failure in the port front landing wheel fitting at the wing, and a detached fragment of the bottom flange of the port front wing spar led the Committee to a reasonably certain conclusion that the port wing failed under down load, probably caused by a bump, as a result of the failure of this wire fitting. The Committee point out that in monoplanes of the braced type there is usually no provision for duplication of the landing wires, and that for design purposes knowledge as to the magnitude of down currents likely to be encountered is necessary in order that the load factors necessary to provide against down loads of this type is required.

Three accidents due to non-recovery of a spin—one of them to an aeroplane of a new type which had never before been spun and which failed to recover in 2,000 ft. have not yet been explained. The data at present available on spinning fail to explain why certain aeroplanes tend to remain spinning despite the normal use of controls to stop that manoeuvre. Special researches have been initiated to this end.

The Fire Prevention Sub-Committee has been mainly concerned with certain experiments on the cooling of exhaust manifolds and pipes made at the R.A.E. This establishment has produced a manifold for the Viper-engined S.E.5 in which the maximum temperature reached at any point is under 350° C. The weight, however, is over 20 lbs., but it is believed that this can be reduced.

WEATHER AND NAVIGATION.

The Meteorology Sub-Committee have discussed gustiness and eddies both as to the degree of gustiness commonly encountered and the amount of up and down currents which occur. Measurements made at Calshot showed vertical currents at heights of up to 2,000 ft. above the sea. The maximum vertical velocity encountered during these tests was one of 300 ft. per minute upwards. The maximum downward current was of 180 ft. per minute—which are velocities much larger than needed to produce serious changes in location on aircraft flying into or out of such currents.

This Sub-Committee also concerns itself with navigation, with navigating instruments and work on compasses, turn indicators, the calibration of barograph records is recorded. Mention is also made of tests on a small model of a "lead cable" system which has given promising results.

TRANSPORT.

The Air Transport Sub-Committee whose business it is to act as a sort of liaison body between the Department of Civil Aviation and the Technical Sub-Committee of the Research Committee, have concerned themselves with the need for instruments suitable for determining the stability and controllability of aircraft and with instruments for measuring petrol consumption and aeroplane speed. They have investigated some of the problems of economic flight and have concluded that the average commercial aeroplane of to-day would be improved in economy by a considerable increase in wing area. They have also recommended further investigation into vertical currents and into the air conditions at heights up to 15,000 ft.

They have considered the question of reliability with however arriving at any novel conclusions. They note that on long flights the most economical height of flight should be the ceiling of the aeroplane and point out the necessity of producing reliable instruments which will enable the pilot to fly over clouds and of teaching the pilot to rely on the instruments before this form of economy can be practised.

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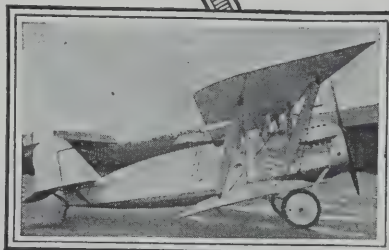
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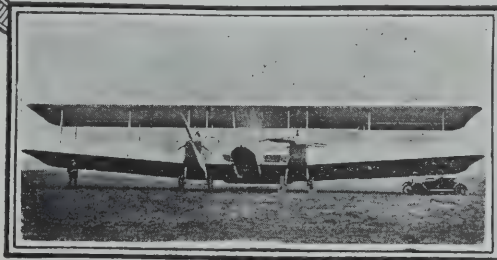
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EXHIBITORS IN THE PALACE OF ENGINEERING, BRITISH EMPIRE EXHIBITION.

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THE RHON GLIDING MEETING, 1924.

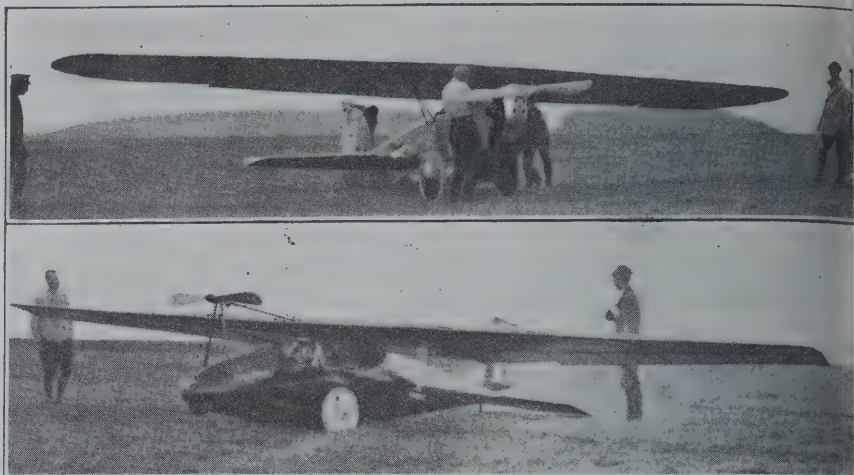
This year's competitions at the Wasserkuppe have again been attended by bad weather conditions—worse even apparently than those of last year. From the opening on Aug. 10 to Aug. 28 rain, fog, low cloud or storm winds were of practically daily occurrence, and as a result of the conditions and the small amount of flying possible the conditions for the Grosser Rhön Segelflugpreis for the longest distance covered, and the prize for the maximum height attained above the summit of the Wasserkuppe, were not fulfilled. The Grosser Rhön Segelflugpreis consisted of a total of 3,000 marks to be awarded in three sums of 1,000 marks each for the longest distance (a) of not less than 10 km. covered in a wind not exceeding 6 metres per second, (b) of not less than 15 km. in a wind not exceeding 10 metres per second, and (c) of not less than 20 km. in a wind exceeding 10 metres per second.

The period during which these prizes may be contested has therefore been extended to Sept. 30.

A prize of 1,500 marks for the longest glide, irrespective of wind conditions, was won by the Darmstadt "Konsul," flown 12.6 km. by Otto on Aug. 23, a second prize of 1,000 marks by the Elberfeld Barmen "Roemryke Bergen," flown 6.5 km. by Kegel on the same day. Martens gained a third prize of 500 marks by covering 4.8 km. on Aug. 26.

No gliding flight of over 1 hour's duration was made, the nearest approach being one of 58 min. 25 sec. made by Otto on the Darmstadt "Konsul."

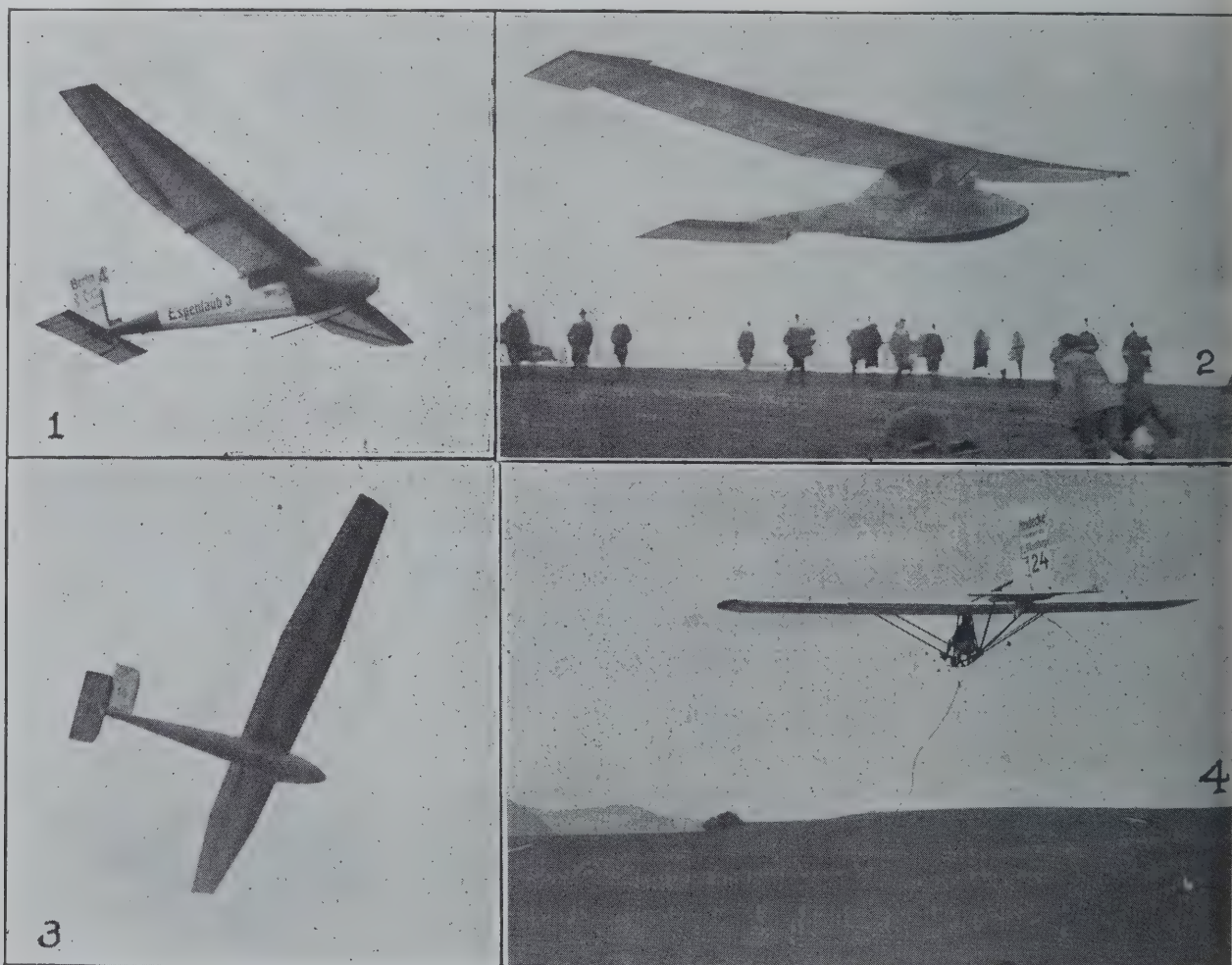
In the light aeroplane class flying was also much hindered by weather. In the race to Kissingen and back, on Aug. 24, three machines, the Udet "Colibri" (750 cc. Douglas), the Martens "Windhund" (Douglas 500 cc.), and the Blume Hentzen "Habicht" (Siemens 750 c.c.) started and all arrived at Kissingen. The Windhund failed to get off the sodden



Top, the Udet Colibri and below the Baumer Roter Vogel, both with Douglas engines.

ground for the return, the Habicht landed with lubrication trouble, and only the Colibri reached the Wasserkuppe on the return, thus winning the first prize of 2,000 marks. The Colibri also carried off the first prize of 1,500 marks in the altitude contest. The second prize of 1,000 marks went to Baumer on the "Roter Vogel," also fitted with a Douglas engine.

Other light aeroplanes which flew and were awarded prizes were the Strö, flown by Seywald, with 500 cc. Douglas, and the Knocke, with a 588 cc. German engine, flown by Holmuth. In all 30 entries for light aeroplanes were received for the competition. The six mentioned appear to be the only ones which flew, and of these four were fitted with Douglas engine. Eleven of the 30 entries specified that Douglas or Blackburn engines would be used, and several other machines were entered in the hope that one or other British makers would be able to deliver an engine in time.



AT THE WASSERKUPPE.—(1) The 1924 Espenlaub. (2) The Schulz "Koenigin Luise." (3) The Elberfeld Barmen "Roemryke Bergen," and (4) the Naumberg School glider "Heidecke."

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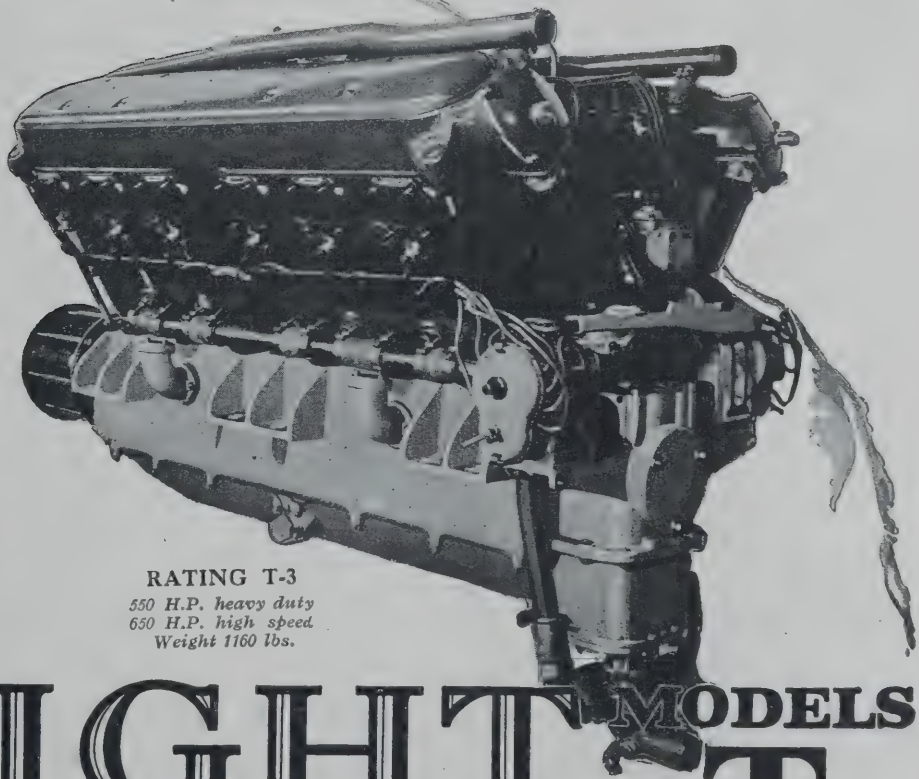
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Col. Brinsmead was accompanied on his flight by Captain Jones, Superintendent of Flying Operations, and Mr. Buchanan, Inspector of Civil Aircraft.

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On the Spreading of Knowledge.

A very large number of the letters addressed to the offices of THE AEROPLANE are dictated by the desire of the writers to add to their technical knowledge of Aviation. In some cases information is sought merely on some specific point of fact or of theory and it is generally possible either to answer the query directly or to refer the writer to an authority competent to answer his query. In a very large number of cases the inquiry is of a very much more general character, and as would require a volume for a complete answer.

In very many cases the inquiry takes the specific form of inquiry for books dealing adequately with particular technical or professional aspects of aviation, and a very large number of these come from R.A.F. officers or men, or from those engaged in civil aviation who are in need of texts or the like which will provide them with information which they need either in their daily work or in a laudable effort to prepare for the probable future requirements of their service or profession.

Inquiries of this nature it is often extremely difficult to give a satisfactory answer. The market for books dealing with the technical side of aviation is limited, consequently there are relatively few really good books of this class and those that there are are expensive. The particular information which any one man requires is often not to be found in any one of them, but has to be collected in detached fragments from various sources.

Another difficulty which often arises is that of acquiring authentic information as to the care and maintenance of specific types of engines and aircraft. During the war the Ministry and its predecessors did cause to be produced a number of excellent handbooks on particular engines and particular aeroplanes which were of the greatest possible value. Some of these have since been issued to the public, but unfortunately they deal mainly with obsolete types. Nor could one expect the manufacturers to supply handbooks dealing with their current models but the actual cost of producing such works in the limited editions for which there is now a demand prohibits their distribution outside a very limited circle, and those to whom these guides would be of the greatest value often have the utmost difficulty even in borrowing a copy.

Under the circumstances it is obvious that the proposal contained in a letter received from Mr. Gillman and here reproduced is well worthy of consideration by those who are concerned in aviation generally. An organisation which could provide at each important aerodrome facilities for consultation of a standard library of aeronautical literature would go far to meet an acutely felt need.

Both the Royal Aeronautical Society and the Institution of Aeronautical Engineers maintain for the benefit of their members a library of technical books. Neither of these libraries however is of any very great use to the average amateur and engineer in this matter, and the Royal Aeronautical Society is scarcely a body which can be expected to cater in any way for this particular class of seeker after knowledge. It is however conceivable that the Institution of Aeronautical Engineers might lend its recognition to local aerodrome committees of the type suggested by Mr. Gillman, and thus both strengthen its own position and facilitate the formation of local centres of enlightenment. The subject is worth consideration by the Council of the Institution.

Mr. Gillman's letter is as follows:—

"It has been my privilege on several occasions to lend technical books and papers dealing with such subjects as engines, Aeroplanes, Metals, etc., to mechanics at Croydon Aerodrome who wished to acquire a wider knowledge of their craft and I have thus been led to the conclusion that some sort of technical society for mechanics is a necessity and I beg therefore, to offer the following suggestions which, I trust, will not be fruitless.

There seems to me to be a real need for some source from which aircraft mechanics can obtain written information on various branches of aeronautical engineering, so far as concerns the Ground Engineer, and therefore, as a first step I would advocate the formation of a lending library for Ground Engineers at Croydon Aerodrome.

To start with it would be necessary to go through the usual preliminaries of calling a meeting of those interested, electing a committee and nominating a secretary and choosing a place for the society. Next a beginning would be made to build up a library. For my part, I have several books and papers which I would be happy to give to the society in order to start it. The various aeronautical manufacturing and air transport operating firms would, I feel sure, be only too glad to assist in such a work since a greater spread of knowledge would lead to greater efficiency and therefore more safety and economy.

There is one direction in which a society such as suggested above could be of great assistance. At the present time, it is nearly impossible for a mechanic to get details of a modern engine or civil aircraft because manufacturing firms

will not supply him, even on payment, with the desired literature concerning their products. Now, I think that they would not refuse to supply such information to an official body and then the way would be clear for the man who wanted to get on.

During the winter months, things are fairly slack so far as flying is concerned, and there would be opportunities to organise a series of lectures on practical subjects, such as Heat Treatment, Metals, Timber, Rigging, Care of Aircraft and Engines, Instruments, Engine Testing, etc., and lectures by representatives of aircraft and engine manufacturing firms dealing with their respective products. These lectures could be held at the aerodrome once a fortnight in the evenings.

Of course, no technical society could run without a certain amount of money, and therefore I would suggest a membership subscription of 10s. per annum, this money to be spent on books and incidental expenses. In addition to this, I am sure that the various aeronautical firms would subscribe a small sum to give the society a start.

Similar bodies could be formed at all the big aerodromes and they could co-operate by exchanging the papers read at the lectures held by each.

As for the "housing" difficulty, I think that the Air Ministry would only have to be approached to get the immediate loan, rent free of course, of one of the many empty rooms in one of the buildings on the aerodrome. To fit out such a room would not present much difficulty.

Now, I think I have said quite enough and I would conclude by saying that I hope that there is some good in the idea presented above and I am ready to assist as far as I can to get things under way and I am sure that THE AEROPLANE will not be backward in helping.

(Sgd.) H. R. GILLMAN.

The Royal Aeronautical Society.

The Council of the Royal Aeronautical Society announce the following programme of lectures for the Session 1924-1925 so far as at present arranged. Further lectures to complete the programme will be announced later. Advance copies of all lectures may be obtained from the Secretary, 7, Albemarle Street, W.1, price 6d. each or 7s. for the series.

1924

Oct. 2.—Lt.-Colonel H. T. Tizard, A.F.C., F.R.Ae.S. (of the Department of Scientific and Industrial Research), Chairman: Inaugural Lecture.

Oct. 16.—Dr. A. Rohrbach (of the Rohrbach Metall-Flugzeugbau Co.): "Large All-Metal Seaplanes."

Oct. 30.—Major J. S. Buchanan, A.F.R.Ae.S. (of the Technical Department, Air Ministry): "The R.Ae.C. Light Aeroplane Competitions."

Nov. 13.—Professor L. Bairstow, C.B.E., F.R.S., F.R.Ae.S. (Zaharoff Professor of Aeronautics, University of London): "Skin Friction."

Nov. 27.—Dr. G. C. Simpson, C.B.E., F.R.S. (Director, Meteorological Office): "Thunderstorms."

Dec. 4.—Colonel F. Searle, C.B.E., D.S.O. (Managing Director, Imperial Airways, Limited): "The Maintenance of Commercial Aircraft."

Dec. 18.—Mr. A. R. Watson Watt (Superintendent, Radio Research Board Station): "Recent Studies on Radio-telegraphic Atmospherics."

1925.

Feb. 5.—Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., A.F.R.Ae.S.: "The Operation of Flying Boats in the Mediterranean."

Feb. 19.—Major R. V. Southwell, A.F.R.Ae.S. (Superintendent, Aerodynamics Department, National Physical Laboratory): Title to be announced later.

Mar. 5.—Lt.-Colonel C. B. Heald, C.B.E. (Medical Adviser to the Director of Civil Aviation, Air Ministry): "Some Medical Aspects of Air Transport."

Mar. 26.—Dr. Eckener (Managing Director, Zeppelin Airship Co.): "Modern Zeppelin Airships."

The Institution of Aeronautical Engineers.

The following list of fixtures for the session 1924/25 is announced by the Institution of Aeronautical Engineers. Where the time and place of meeting is not stated all papers are to be read at the Engineers' Club, Coventry Street, W.1, at 6.30 p.m.

1924.—October 17: Paper, "Commercial Airship Design," by Commander F. L. M. Boothby, C.B.E.

November 7: Paper, "Steel versus Lighter Alloys," by Colonel N. T. Belaiew, C.B.

November 21: Paper, "Graphical Methods of Aircraft Structural Design," by Dr. A. P. Thurston, M.B.E.

December 12: Paper, "Notes on Seaplane Design," by Commander J. C. Hunsaker (C.C.), U.S.N., Assistant Naval Attaché to the American Embassy, London. Kingsway Lecture Hall, Kingsway Hall, W.C.2. 6.30 p.m.

1925.—January 9: Paper, "The History and Evolution of the Avro Training Machine," by Mr. R. J. Parrott, Honours Member.

January 23: Paper, "A Few Experiments with Shock-Absorbing Hulls for Flying Boats," by Lieut. N. A. Olechnovitch.

February 6: Paper, "Photo-Elastic Methods of Measuring Stress," by Professor E. G. Coker, D.Sc., F.R.S.

February 20: Paper, "Flying in Australia," by Mr. H. L. J. Hinkler.

March 6: Second Annual Lecture by Continental Designer: "The Advantages of Metal Construction," by M. E. Dewoitine. Kingsway Lecture Hall, Kingsway, W.C.2. 6.30 p.m.

April 24: Paper, "The Position of the Airship in Aerial Transport," by Commander C. D. Burney, C.M.G., M.P., R.N.

May 8: Paper, "A Resumé of Achievements in Aviation during the Past Year," by Captain W. H. Sayers.

May 20: Visit to the National Physical Laboratory, Teddington.

June 6: Visit to the Croydon Aerodrome.

COMMERCIAL AERONAUTICS.**The London Terminal Aerodrome.****ANALYSIS OF FIGURES FOR THE PAST WEEK.**

Trips per Day.—Monday, 21; Tuesday, 20; Wednesday, 20; Thursday, 20; Friday, 20; Saturday, 22. Sunday, 14.

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SURREY FLYING SERVICES

Machines 1, passengers 1

Total number of trips by British machines: 95, carrying 401 pas.

Foreign machines: 42, carrying 171 passengers.

Comparative Figures:

For week ending Sept. 14:

Machines, 137, Passengers, 572; Crews, 165; Total personnel, 737.

Corresponding week, 1923:

Machines, 138; Passengers, 549; Crews, 223; Total personnel, 772.

Corresponding week, 1922:

Machines, 121; Passengers, 411; Crews, 215; Total personnel, 626.

Corresponding week 1921:

Machines, 96; Passengers, 224; Crews, 120; Total personnel, 344

Corresponding week, 1920:

Machines, 115; Passengers, 285; Crews, 142; Total personnel, 427.

Croydon Notes.

Nothing out of the ordinary has happened at Croydon during the past week. It is satisfactory to note that the passenger and goods traffic still maintains a high level in spite of the weather. The actual number of passengers carried this week of this year is 23 more than in the corresponding week of last year, but last year 58 more crew personnel were needed. Which goes to prove that aviation is getting more of a commercial proposition.

Memory of weather conditions of past years is always short but it is difficult to believe that the weather we have been suffering in the past weeks has ever been worse during the corresponding seasons of the years gone by.

Winter draws on and curtailed services will soon be the order of the day. K.L.M. announce that on Oct. 6 there will be but a single service between Holland and England which will leave either terminal station at 10.30 hrs.

It is understood that a new machine is being built by the

N.V.I. of the Hague for operation on this service in spring. It will be a 12-seater driven by three engines and has been designed by Mr. Fritz Koolhoven fame.

It will be remembered that Mr. Koolhoven built the world's first "commercial" aeroplane, the Bat. This was constructed by Sir Samuel (now Lord) White whose many aircraft concerns have been in a state of suspended animation since those far-off days when he understood that he received honours for his service in aviation.

The Aircraft Disposal Company Ltd. are still busy with contract of Martinsydes with Lamblin radiators. They have completed the second red D.H.9 for Mr. C. Northern Air Lines and this is now awaiting delivery.

THE GLOBE TROTTERS.

At 14.00 hrs. on Sept. 9 Lieuts. Smith, Nelson and Wade arrived at Bolling Field, Washington from New York. They made a stop for lunch at Aberdeen, Md. On landing they received a national salute of 21 guns the President's reception, and a tremendous reception from a huge crowd. It was arranged that they should stay in Washington until Sept. 13 so that they could participate in a Defence parade to be held on Sept. 12, and this stay would permit a new engine being installed in Mr. Nelson's machine, having had a forced landing due to a stripped timing on Sept. 9.

On Sept. 14 the three machines left Bolling Field, Dayton, Ohio, and covered the 420 miles in 6 hrs. 40 mins. A stop of two days was made at the home of the Wright Brothers and "the birthplace of the aeroplane" in order to change the engines of the machines of Lieuts. Smith and Wade.

On Sept. 15 they flew from Dayton to Chicago, a distance of 294 miles in 2 hrs. 55 mins. They were escorted on the latter half of the journey by eight Army aeroplanes which accompanied them to the Air Mail Field at Maywood.

THE AIR LEAGUE CHALLENGE CUP RACE.

The race for the Air League Challenge Cup, presently a competition between R.A.F. units, will start and finish at Lympne Aerodrome on Wednesday, Oct. 1. The start is timed for 14.30 hrs.

The entrants are 25 Squadron (Hawkinge), 32 Squadron (Kenley), and 56 Squadron (Biggin Hill). Each Squadron

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will be represented by a flight of three Sopwith Snipe. The machines must fly the course in their separate formations of three machines and they will be judged at the turning points and at the finish on these formations. The formation which completes the course in the fastest time will receive the greatest number of marks and marks will be awarded for the quality of the formation at the turning points. These turning points will not be announced until a few minutes before the start. The course will be 100 miles in length.

The Grosvenor Cup Race.

The race for the Challenge Cup presented by the Lord Edward Grosvenor will start at Lympne Aerodrome at about 15.00 hrs. on Oct. 4. It will be open to aeroplanes the piston displacement of whose engines is less than 1,100 c.c. That is to say it will be open to all machines competing in this year's trials and all of last year's single-seaters.

The race will be over two circuits of a course of which Lympne and Manston are the turning points.

Entries close on Sept. 25.

So far an Avro, a Beardmore, a Blackburn, a Bristol and a Supermarine have entered. It is understood that the Royal Aircraft Establishment Aero Club's Hurricane which has been much improved since last year will also be entered.

A Saunders' Novelty.

A new flying boat more or less of F.5 type which has been built by S.E. Saunders Ltd. of Cowes has been tested successfully this week. The aerodynamical portion is pure and simple F.5 practice. The novelty is in the hull the cross-section of which is V-shaped. Owing to certain afterthought modifications rendered necessary by Air Ministry experts, it was not expected that the performance would be quite up to scratch and the machine has been built for tests only.

The Z.R.3 on Test.

On Sept. 11 the Zeppelin Airship Z.R.3 left Friedrichshafen with a number of engineers and press representatives on board for a flight over Switzerland.

The flight took the airship over Lake Constance, Schaffhausen, the Black Forest, Basel, Neuchâtel and Zürich.

The weather, especially over the Black Forest, was squally, and the airship, which flew low, was thrown about a good deal.

Supermarine Athletics.

A Rowing Section of the Supermarine Sports Club was formed this year and although the crews were very late in starting training and were not able to get together for regular practice until the second week in July, they have done remarkably well.

On Aug. 9 the gig crew were placed first at the Southampton Regatta and as winners of the first prize they hold the Macdermott Challenge Cup for one year. This crew are drawn from the wiremen and riggers shops.

The four-oared galley crew won their first race at Hythe Regatta on Aug. 23. This crew hope to have a new boat next season. The one they used this year is an old craft kindly presented to them by one of the old established Southampton rowing clubs to help them to make a start. The crew, being drawn from the boat and hull shops, carried out the necessary alterations and repairs themselves in their spare time in order to make the boat racing-worthy.

To the Anonymous L-AC.

If "Leading Aircraftsman" who wrote an interesting anonymous letter to THE AEROPLANE from Martlesham Heath on Sept. 9 will send his name and address the Editor will be pleased to reply to the letter.

PERSONAL NOTICES.

DEATH.

BAILLIE.—On Sept. 15, at Eastchurch, as the result of an accident, Arthur Douglas Baillie, Pilot Officer, No. 17 (Fighter) R.A.F.

Mr. Baillie was gazetted to the R.A.F. in July, 1923, and posted No. 17 Sqdn. in July of this year. One account of the accident is that the machine, a Snipe, left the ground at a steep angle head wind and crashed about 60 ft., the petrol tank exploding and burning the machine.

REEVES.—On Sept. 12, at Leuchars, as the result of a flying accident, Guy Francis Reeves, Flg. Off. No. 404 (Fleet Fighter) R.A.F.

Mr. Reeves was gazetted to the R.A.F. on June 10, 1922, and went a course of instruction at Duxford. In Dec., 1923, he was posted to Leuchars and was flying a Night-jar at the time of the accident. According to the Air Ministry statement the machine spun from about 60 ft.

BIRTHS.

NEVILLE.—On Sept. 10, at The Lawn, Great Shelford, Cambs., the wife of Sq. Ldr. R. G. Neville, M.C., R.A.F.—a son.

ROBERTSON.—On Sept. 5, at Milton, Marlborough, Wilts., to the wife of Flt. Lt. B. K. D. Robertson, A.F.C.—a daughter (still-born).

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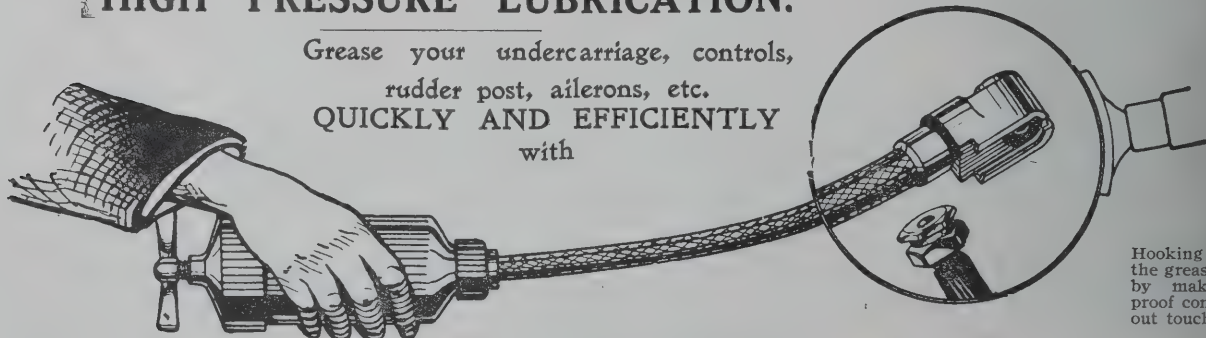
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Edited by
C. G. Grey

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'I'LL PUT A GIRDLE ROUND ABOUT THE EARTH IN FORTY MINUTES.... HAVING ONCE THIS JUICE...'—*Midsummer Night's Dream*.

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(Photograph by F. Rendell Burnett.)

IN THE KING'S CUP RACE:—The Fairey III D. (Napier Lion) refuelling with Shell Aviation Spirit at Stranraer. Shakespeare, as quoted, perhaps exaggerated speed a trifle, but that may be ascribed to poetic license, not endorsed for exceeding the limit.

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Further examples of AVR machines will be shown in this journal from time to time.

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ON THE RULES OF AIR WAR.—III.

HOSTILITIES.

Chapter IV of the Report of the Hague Commission on Rules of Warfare deals definitely with the subject of hostilities and here we come up against the real problems of air war. This chapter is peculiarly interesting because it shows the essential difference between the minds of the statesmen who drew up this report and the minds of practical engineers.

The article with which this chapter opens reads as follows:—

Article 18.—*The use of tracer, incendiary or explosive projectiles by or against aircraft is not prohibited. This prohibition applies equally to States which are parties to the Convention of St. Petersburg, 1868, and to those which are not.*

The White Paper states that this article is intended to remove any doubt which arose during the recent War (1914-18) as to the use of tracer bullets against aircraft. It was a general practice in all the contending armies in the absence of a hard surface on which the bullet struck an airman could not tell whether or not his aim was correct and that these bullets were used as the trail by which they leave behind indicates the exact line of

aim. It is true that in one case combatant airmen were arrested and put on trial on the ground that the use of these bullets constituted a breach of the existing rules of war. Further, it is true that the use of incendiary bullets is necessary in the case of lighter-than-air craft as they can be most easily destroyed by setting fire to the gas contained in them.

The Commission says that the proposal as first brought forward was limited to a stipulation that tracer bullets were prohibited. Criticisms against this phrase were founded on the impracticability for an airman to change the ammunition which he was using according to the target at which he was aiming and using "one sort of ammunition for aircraft and another sort for land forces by whom he was attacked." Consequently the article was produced in the form hereinbefore.

The whole argument on this point is really extremely weak. The aviator, happy man, may use explosive bullets. The objective "explosive" must obviously imply expendable bullets either of the split-nosed or Dum-Dum type, as in the case of bullets with an actual explosive charge inside. But the unfortunate infantryman who is found using split-nosed bullets in his machine gun or rifle is liable to be shot on the

spot. The question then arises—What is the position of the crew of an aeroplane which having been brought down in territory controlled by the enemy unships its machine guns and endeavours to fight its way out? One remembers that the crew of a Handley Page which was forced to land in Belgium during the War 1914-18 fought its way for about ten miles through the Dutch Frontier and very nearly reached Germany in Holland before being rounded up by German troops. What will be the position of such a crew using machine guns served out for use by aircraft but not actually mounted on an aircraft?

In the early days of the War 1914-18 the press of all the contending nations set up an equal howl about the use of tracer bullets. The German press advocated hanging British airmen who were found in possession of tracer bullets and the English newspapers called for Divine vengeance on this Hun atrocity when the Germans started using them. But no one has been unable to discover which of the belligerents actually invented the tracer bullet. And it should be remembered that the tracer bullet is not necessarily an incendiary bullet, for the chemicals which leave the smoke trail are generally burnt themselves out before reaching the target, unless fired at very close range. If a tracer is fired from a petrol tank from a short enough distance it may light but there have been cases in which a tracer has been fired from a solid petrol tank without any accompanying air and has been extinguished by drowning. A tracer bullet will as a rule be set light to petrol which has escaped from a tank which has already been perforated.

Article 19.—*The use of false external marks is forbidden.*
This is a rule which is much more likely to be obeyed for the sake of expediency than for any other reason. As already explained, disguised ships of war have always had the habit of sailing under false flags till the moment of going into action. And presumably exactly the same thing will happen in air warfare.

The best story in this connection concerns a convoy going up the coast of a neutral country in territorial waters, escorted by neutral destroyers. The leading ship of the convoy following one of these destroyers was a large German merchant ship. Behind her was a British commerce destroyer disguised as a peaceful merchantman. On the way the neutral destroyer chose to indulge in a little firing practice and stood out to sea for the purpose.

The skipper of the British ship spotting his opportunity, promptly hoisted the international signal "You are standing into danger." The result was that the German ship ahead of him also stood out to sea in the wake of the destroyer. Whereupon the British ship having got the German outside the three-mile limit promptly hoisted the Naval war flag and sank her.

One can imagine the possibility of quite similar uses of false marks in the air.

Article 20.—*When an aircraft has been disabled, the occupants, when endeavouring to escape by means of a parachute, must not be attacked in the course of their descent.*

This is perhaps the silliest of all the Rules of Warfare.

If an aeroplane flying over territory occupied by its own troops is shot down or set on fire or so severely damaged as to be uncontrollable and the occupants escape in parachutes then the total loss is the machine only. The crew have only to go to their aerodrome, get into another machine, and again become a fighting force.

Now one of the first principles of von Clausewitz is that the object of war is to put out of action permanently or at any rate for the duration of the war the enemy's fighting forces. Therefore it is obviously unreasonable to allow fighting personnel to escape and live to fight another day or even the same day by running away in parachutes.

Evidently it should be the duty of a fighting aviator who has forced his opponents to quit their machine by parachute to destroy them, or at any rate to disable them so that they shall be incapable of further fighting. One quite recognises the fact that the sporting aviator would feel some natural compunction in attacking a defenceless man who is swinging at the end of a parachute string like a joint of meat on a roasting jack. But from the strictly military point of view he is not doing his duty as a soldier if he permits that man to escape.

It is one thing to land alongside an opponent whom one has shot down in one's own territory and to do one's best to save that opponent's life. In such cases the opponent if he recovers will be out of action for the duration of the war. In the other case if one allows the man to escape he may be the cause of one's own death when he comes up in a new machine shortly afterwards.—C. G. G.

ON THE SCHNEIDER TROPHY FIASCO.

The Royal Aero Club has cabled to the Aero Club of America formally withdrawing the British entry from the Schneider Trophy race. No entry was made by France and news has been received of the withdrawal of the Italian entry. Thus the Aero Club of America is the only entrant.

Provided their machines pass the mooring and navigation tests and fly at any speed they like over the course they retain the Cup. If they win it next year it becomes their property.

Therefore now is the time for Great Britain to start on the machines for next year's race so that a full team of three thoroughly efficient and well-tested machines, together with reserves, may be sent to the United States so as to arrive there in ample time for the pilots to practise on the actual course.

If we do not start on the machines at once—not next month but now—they will not be ready for the race next year.—G. D.

THE COMPETITION LIGHT AEROPLANES.

In the pages which follow there will be found descriptions and illustrations of practically all the light aeroplanes which have been entered for the Air Ministry's competition for two-seater light aeroplanes.

BIPLANES AND MONOPLANES.

The first thing that strikes one in considering the list of entries is the fact that whereas in all previous light aeroplane competitions, both in this country and abroad, the monoplane type has been in an overwhelming majority; in this case the field is fairly evenly divided between biplanes and monoplanes. Of 18 entries, nine are biplanes, seven monoplanes, and two are doubtful. Of 16 different types of machine comprising the entries, eight are biplanes, six are monoplanes, and two, as before, doubtful. The biplane thus appears to be the favourite type by a small margin.

(Since this was written the doubtful entries have proved to be one biplane and one monoplane.)

This large proportion of biplanes is accounted for by the very great advantage which under the system of marking adopted for the competition, will result from the lowest possible minimum speed. From the data at present available as to wing and power loadings of the various entries, however, it does not appear that the biplane is likely to show very great advantage even in this respect. It is true that on the whole the biplanes show a lower wing-loading than the monoplanes, but the difference is not sufficient to compensate for the difference between the lift co-efficient likely to be attained in practice in the two cases. It is true that the biplane designers generally have put a lower estimate on their minimum speed than have those who have chosen the monoplane, but the biplane designer knows fairly accurately what figure he can realise in practice, whereas most of the monoplane designers have, one fancies, given themselves a margin representative of their uncertainty as to the relation between model and full-size results with thick wings.

He would indeed be a rash man who attempted to prophesy the result of this extremely complicated and highly artificial contest—even to the extent of choosing a monoplane or a biplane as the chief prizewinner—but on the other hand one feels no particular hesitancy in suggesting that both the most generally serviceable two-seater and the machine with the best all-round performance to be seen at Lympne this year will be monoplanes.

FLAP GEARS.

Of the nine biplanes entered no less than six are fitted with a camber-changing flap-gear. Also one monoplane is so equipped. Here again the reason for this extensive use of a long-known but relatively little-used device is to be found in the importance of slow flying for the purposes of

the competition. Considering that the first practical use of wing-flaps were made ten years ago, and that one has made extensive use of them over nearly the whole of the intervening period, this sudden but belated run on flap-gears is a little surprising.

SEATING.

In regard to seating accommodation only two machines—the Cranwell machine and the Blackburn—have adopted the side-by-side seating arrangement. The side-by-side arrangement has the obvious drawback of requiring a fuselage of large cross-section, but one has grave doubts as to whether the extra resistance so entailed is necessarily sufficiently serious to outweigh all the advantages which may be gained—particularly apart from competition conditions. Even for this purpose the better concentration of weight which is possible should considerably increase the controllability—and it is to be remembered that controllability is in practice a quality which largely determines how slowly a given machine can safely be flown.

ENGINES.

In the choice of engines there is less unanimity than at one time seemed probable. This is in many ways a matter for thankfulness. It is unfortunate that the vacillating policy of the Air Ministry in regard to the granting of "Certificates of Exemption" from the regulations concerning Certificates of Airworthiness should have been allowed to interfere in the first place with the designers' freedom of choice in regard to engines, and then have led to a hasty scramble for such engines as could be obtained in time. Either the Air Ministry should have openly specified for the uniform use of a single type of engine, thus making the contest one purely between the aeroplanes, or it should have given designers an absolutely free hand in the matter and left the competition to decide what engines were in what were not reasonably reliable and suitable types.

METAL CONSTRUCTION.

Somewhat surprising is the fact that two designers have indulged in metal construction for light aeroplanes. The Bristol Brownies have all-steel fuselage frames, and he has in addition steel wing spars and duralumin ribs. Short Bros. have produced an all-duralumin fuselage, and propose in future machines of the same type to use steel spars and light alloy ribs. On general principles it is obvious that metal construction presents greater practical difficulties in small machines than in large ones, and the appearance of these particular machines is evidence of the advanced state of the technique, as opposed to the practice, of metal construction in Britain.—W. H. S.

Nos. 1 and 2.—The Bristol Brownies.

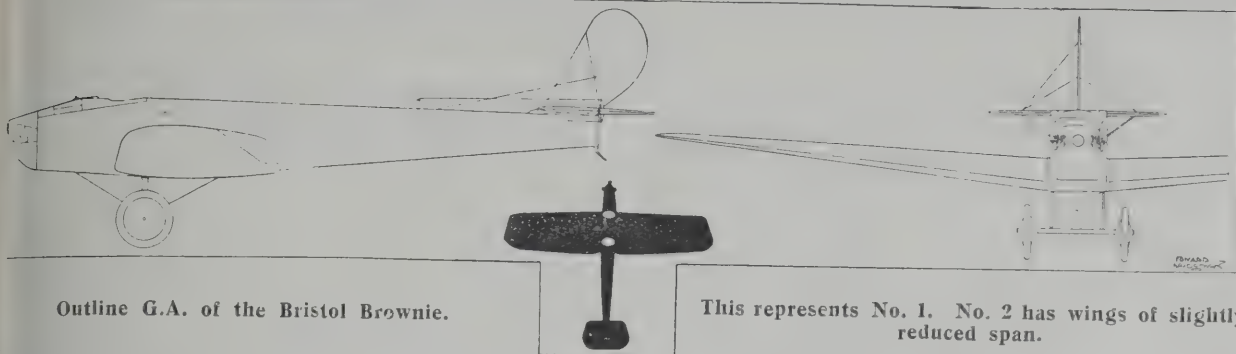
The two machines entered by the Bristol Aeroplane Co. are low-wing cantilever monoplanes designed by Capt. F. S. Barnwell. Although both are essentially of the same design there are important differences between the two machines, in that whereas No. 1 has all-wooden wings, No. 2 has all-steel wings and is of 2 ft. less span and 12 sq. ft. less area.

The fuselages are entirely built of steel tube, wire-braced except in the bays just behind the engine mounting, where swaged rod bracing is employed. The normal strut joints

are simple sleeves, sweated to the longerons, the strut ends being fitted with screwed terminals which pass through the sleeves and at the same time secure the necessary wing plates. The two seats are arranged in tandem, one ahead of the front and one behind the rear wing spar. The seats are of somewhat novel construction, the main frame is a right-angle of very light-gauge steel tube, the seat proper is of corrugated duralumin. These seats are carried on spruce and three-ply bearers and are to be padded by air cushions.



Two Views of the Bristol Brownie Monoplane.



The wings, which are of a very thick biconvex section at the roots, taper both in thickness and chord to the tip and are set at a very marked dihedral angle. The spars are attached to the root spars at the fuselage by a plain pin at the bottom, and by an adjustable joint at the top of each spar.

This joint consists essentially of a large forked eyebolt attached to the root spars mating with a pair of lugs on the wing spars and coupled thereto by an horizontal pin. The forked bolt screws into a castellated nut, which in its turn screws into a heavy steel fitting built on to the root spar and into the fuselage framing. This nut has male and female screws of different pitches, so that as it is turned the wing screws out of the fuselage fitting, but the forked bolt screws into the nut at a slightly different rate. The result is a very fine adjustment of the dihedral angle is possible, and moreover as this adjustment can be made independently on the two spars, any tendency of the wings to "sag" can be corrected. This differential screw fitting is shown in one of the sketches reproduced.

The undercarriage consists of two steel tube legs vertical in side and front elevations attached to the front wing spar. These are joined at their base by an axle tube which overhangs the vertical struts considerably. Fore and aft bracing from the base of each strut to the fuselage, and bracing in the plane of the two struts keep the undercarriage in position. Special Palmer Aero Wheels 700 mm. diameter are fitted, and the large tyres plus the deflection of the overhung axle are relied upon to absorb landing shocks.

The tail skid is of the leaf-spring variety and the simple construction of this component is shown in a sketch.

The tail unit is framed in steel tube throughout. The rudder and fin are entirely above the fuselage, with the rear post axis markedly inclined forward. The elevator

is in one piece extending without break across the whole span of the tail.

The wooden wings of Brownie I are built up on box spars of spruce and plywood, with spruce Warren girder-type ribs. The compression ribs are built up of spruce structure, well shown in a sketch, and the drag-bracing is doubled, there being one set of drag wires at the top and one at the bottom of the spars in each bay.

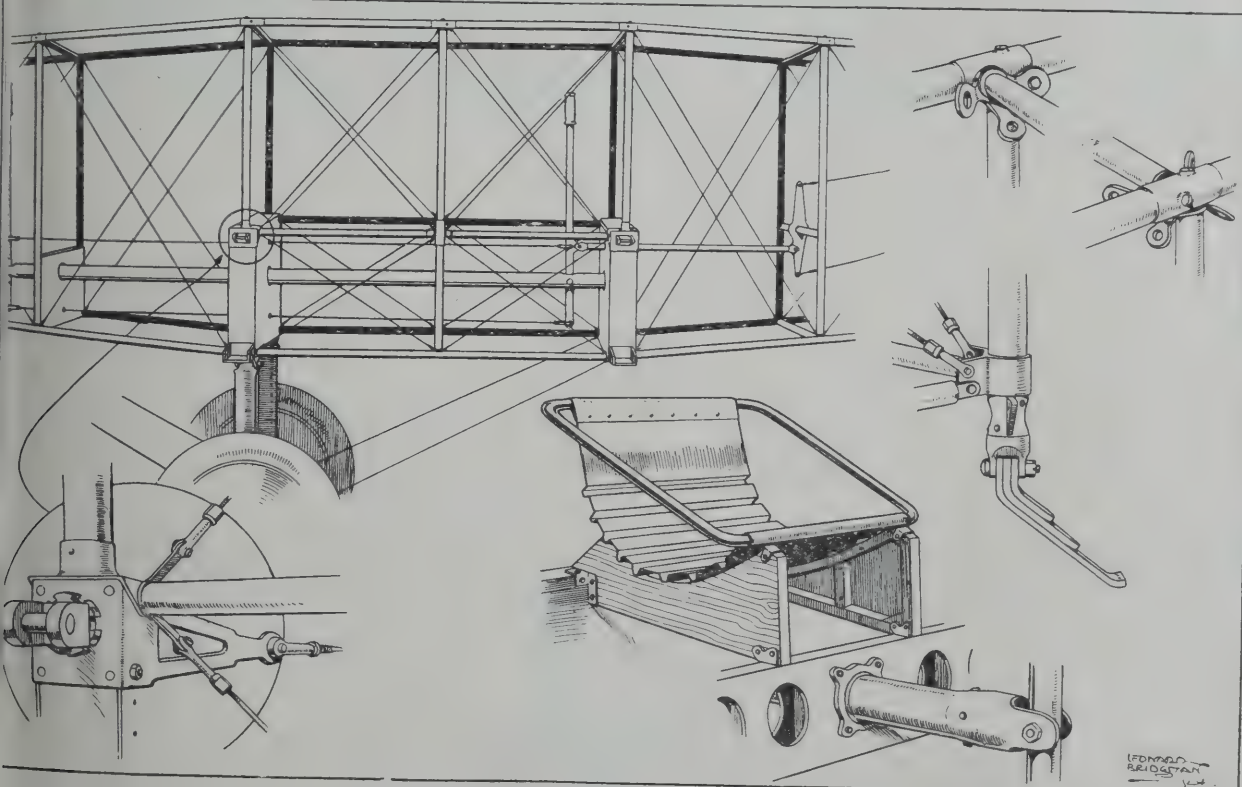
The metal wings have steel spars and duralumin ribs. The spars consist of top and bottom flanges uniform in section throughout the span tied together by a Warren bracing made from a single length of large diameter steel tube, flattened at each end and rivetted to the flanges. The flanges consist of a shallow channel section into which the Warren bracing tubes are fitted surmounted by a trilobe section whose edges fit over and are rivetted to the edges of the channel. The ribs are very simple Warren girders built of duralumin channel sections.

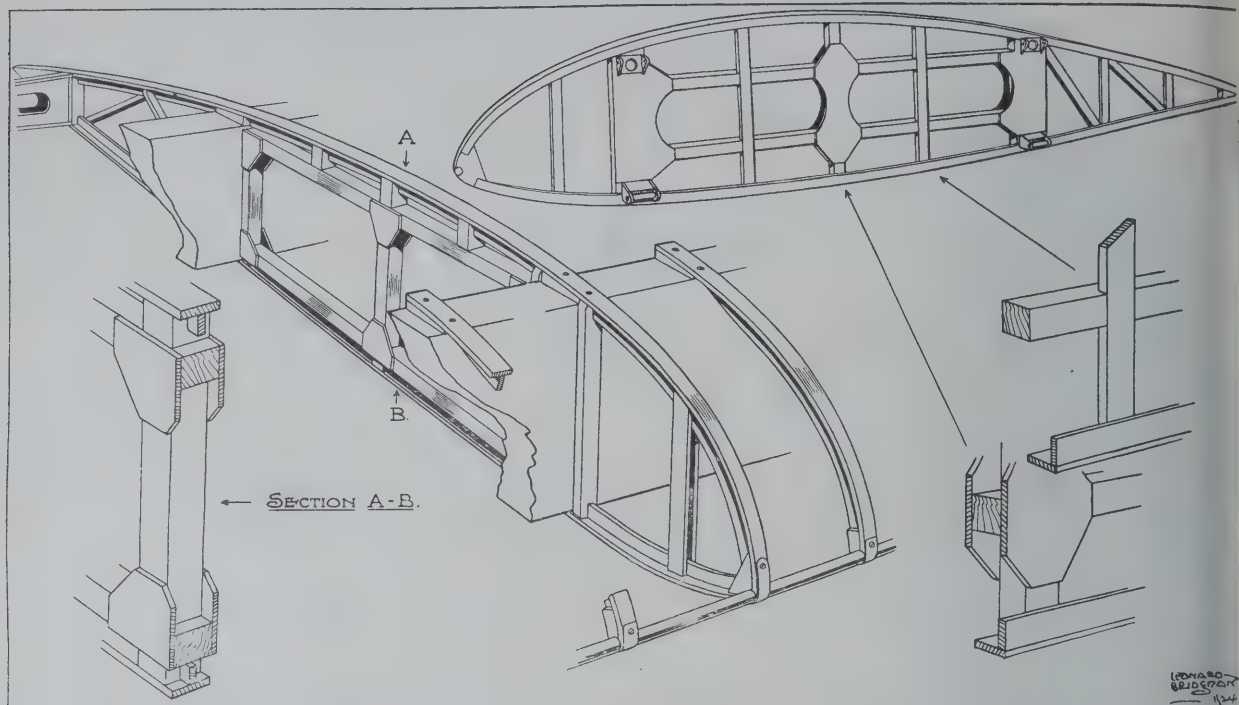
The ailerons are of great span and taper in chord from the tip inwards.

The Cherub engine is mounted on four stiff steel pillars projecting from the front bulkhead of the fuselage and screwed onto the projecting crankcase studs. These four supports are entirely unbraced, the slight lack of rigidity of the structure serving in some measure to insulate the fuselage from vibration of the engine.

The petrol tank is housed in the fuselage fairing over the front seat, and carries 3.37 gallons giving approximately 80 minutes' fuel supply at full power and 1½ hours at cruising speed. The estimated performance indicates a maximum speed of 70 m.p.h., a minimum speed of 36 m.p.h., and a most economical cruising speed of 58 m.p.h.

The first of the Brownies has been flying for some weeks and has, it is said, shown itself to be satisfactory in every way.





The Bristol Brownie.--Wooden wing details, end and compression ribs.



The Cranwell C.L.A.2 Biplane.

No. 3.—The Cranwell Club Biplane.

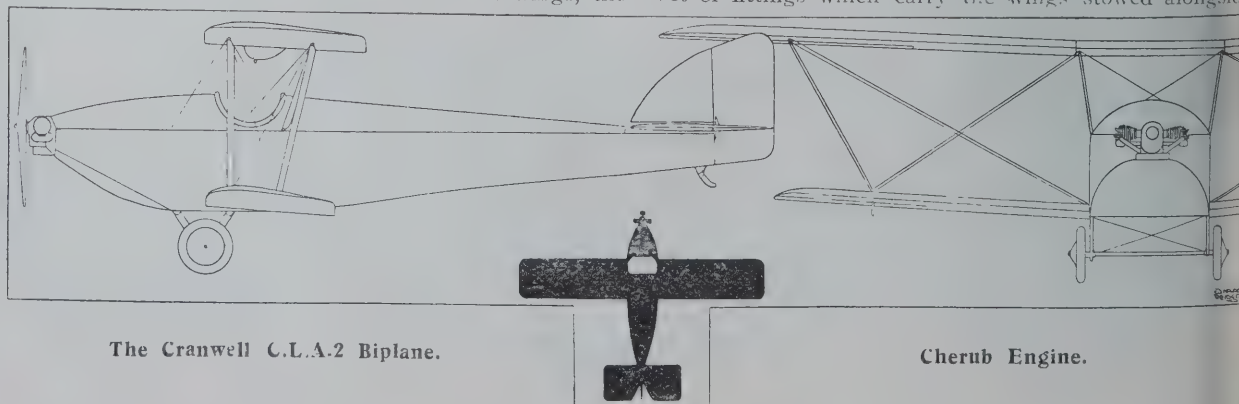
This machine which has been designed and built by officers and men of the Staff at Cranwell, who have formed the Cranwell Light Aeroplane Club, is a side-by-side two-seater biplane, with a large top and a smaller bottom plane, fitted with a Cherub engine.

The fuselage is of the normal wire braced type, with ash longerons in the front section which has fairly sharp curves and spruce behind. The fuselage is brought down to a very small cross-section forward and the Cherub engine is mounted on a combined engine bearer and fireproof bulkhead of very neat design.

The seats are below the centre section and the cockpit is extremely roomy. It is entered from behind the wings, the

cowling on the top of the body being hinged to allow entrance to step inside and so avoid the necessity for fitting an upper deck heavy enough to be walked on.

The wings are built on I section spruce spars with 16 girder all-spruce ribs and square spruce drag struts. The leading edge of the small lower wing is slightly behind that of the upper wing, so that effectively there is no appreciable stagger. Interplane struts are of spruce and the internal bracing of streamline wire. The centre section is carried on four slightly splayed out spruce struts. The wings do not fold—instead quickly detachable fittings are used to facilitate their being dismantled and erected rapidly, and a very simple set of fittings which carry the wings stowed alongside the fuselage.



The Cranwell C.L.A.2 Biplane.

Cherub Engine.

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"PUMA" ENGINE

*Flight round
Australia*

Colonel Brinsmead, Controller of Civil Aviation reports that ARMSTRONG SIDDELEY "PUMA" engine gave no trouble throughout. Total expenses incurred during 7,750 miles were 22/- to replace two valve springs and two plugs. The D.H.50 machine in which the "PUMA" engine was installed flew during 25 consecutive days, averaging four hours daily in extreme temperatures. Although only three nights under cover the engine returned giving full revolutions.

"PUMA" ENGINE

*Air Race in
Ireland*

Won by Capt. W. S. Hannon on a D.H.9 Aeroplane fitted with an ARMSTRONG SIDDELEY "PUMA" engine. This engine ran 145 hours previously without overhaul. This race was an event in the display given by the Irish Free State Air Force during the Tailteann Week.

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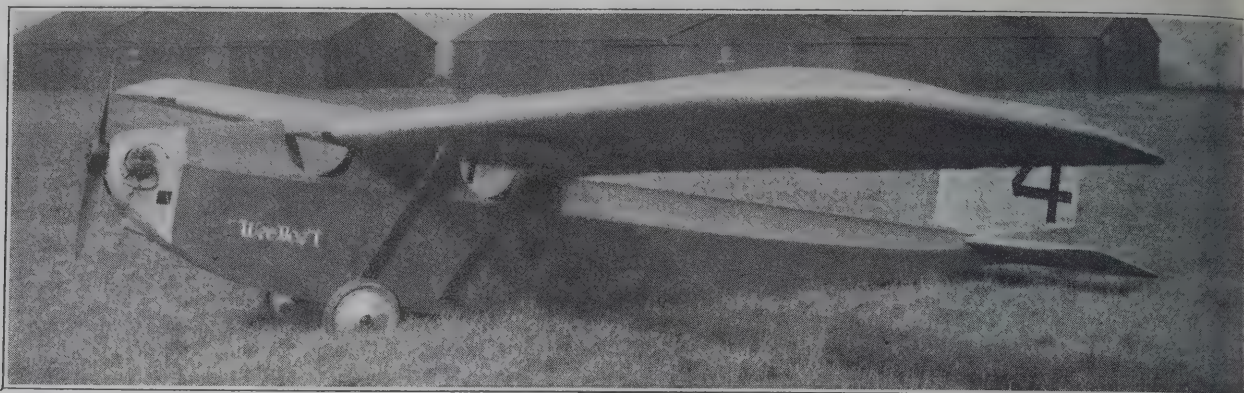
fuselage in their dismantled state are carried on the machine. The tail unit is of orthodox form, and has very adequate stabilising and control surfaces. These are framed in spruce.

A gravity fuel tank of $4\frac{1}{2}$ gallons capacity is built into the centre section.

The undercarriage consists of a pair of multiply Vees, supporting an undivided axle on rubber shock absorbers and

fitted with Palmer wheels. The machine has been completed for over a week and has done quite a fair amount of flying, though some engine troubles have been encountered. The machine is extremely controllable, particularly at low speeds, but owing to non-delivered instruments no data as to the machine's performance has been obtained.

No. 4.—The Beardmore Wee Bee.



The Beardmore Wee Bee Monoplane.

This machine, to the design of Mr. W. S. Shackleton, is a high-wing, rigidly-braced monoplane.

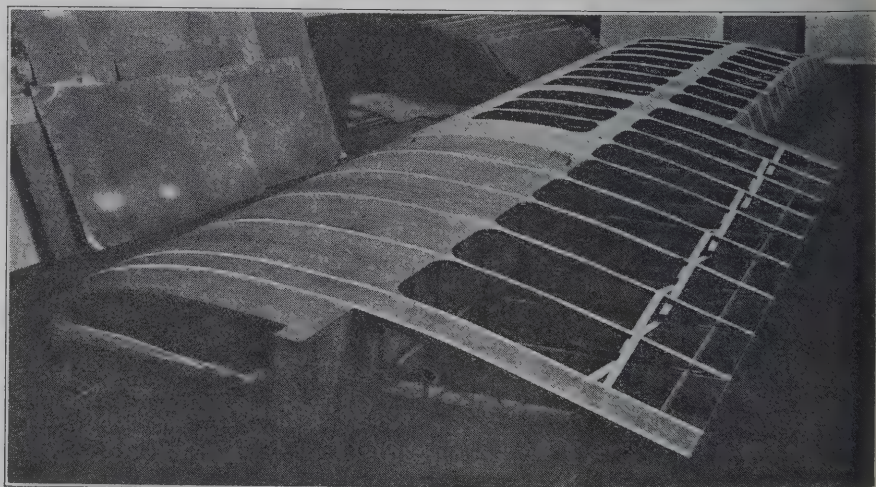
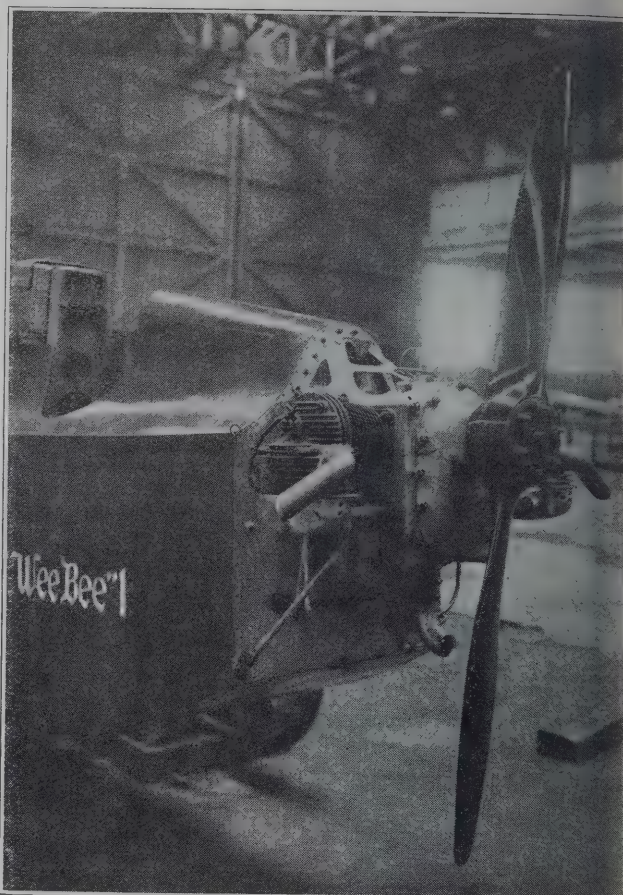
The fuselage in section is a rectangle surmounted by an approach to a triangle, built on six spruce longerons, with spruce and plywood bulkheads, three-ply covered. The wings are attached to the top of the "triangular" fuselage top by pin joints and are braced to the bottom of the fuselage by inclined struts. The two seats are in tandem, one ahead of and one behind the wing spar joints, the front one coming below the leading edge and the other behind the rear spar. The fuselage is carried on the ground by a bent axle of nickel-chrome steel, which projects considerably from the side of the fuselage. The deflection of the axle, together with the resiliency of the tyres are the only form of springing employed.

The wings which are of uniform chord throughout and taper in thickness at the extreme tips only are built up on two spruce and ply box spars. The ribs have spruce flanges with plywood webs arranged as Warren truss members. A 1 mm. three-ply over the whole wing surface from leading edge to the rear spar serves to preserve the contour and to resist drag forces. Ailerons of very narrow chord are carried from a false spar behind the rear main spar.

The fixed tail plane is of very small chord and is supported by a single cantilever spar and is built in one piece with the rear part of the fin. The elevator which is in one piece is hinged to the tail plane at the top edge, and a duralumin flap is fitted to close the gap on the bottom.

The Cherub engine is mounted ahead of a fire-proof bulkhead on an upper pyramidal support of duralumin plate, and on two lower duralumin pillars which are braced by steel tubes to the lower corners of the bulkhead. It is necessary to undo only four nuts, and the petrol and control connections to remove the engine. Petrol is gravity fed from a tank in the wings between the two spars.

The Wee Bee has been designed throughout to comply with the Air Ministry's requirement as to strength for the General Class of Airworthiness Certificate. The machine is expected to develop a maximum speed of 86 m.p.h., to land at 36 m.p.h., to climb to 3,000 ft. in seven minutes, and to have a ceiling of 21,000 ft. Preliminary tests already made have been eminently satisfactory and it is stated that the expected performance has been achieved. If this is the case the machine should undoubtedly do extremely well in the competition.



The engine mounting and the wing framing of the Beardmore monoplane.

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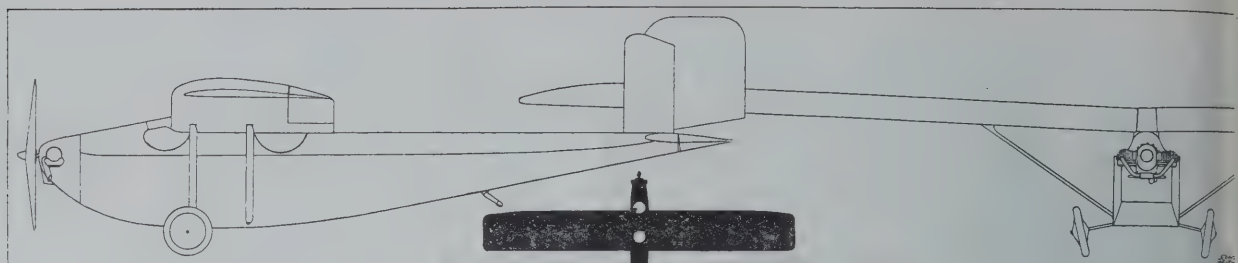
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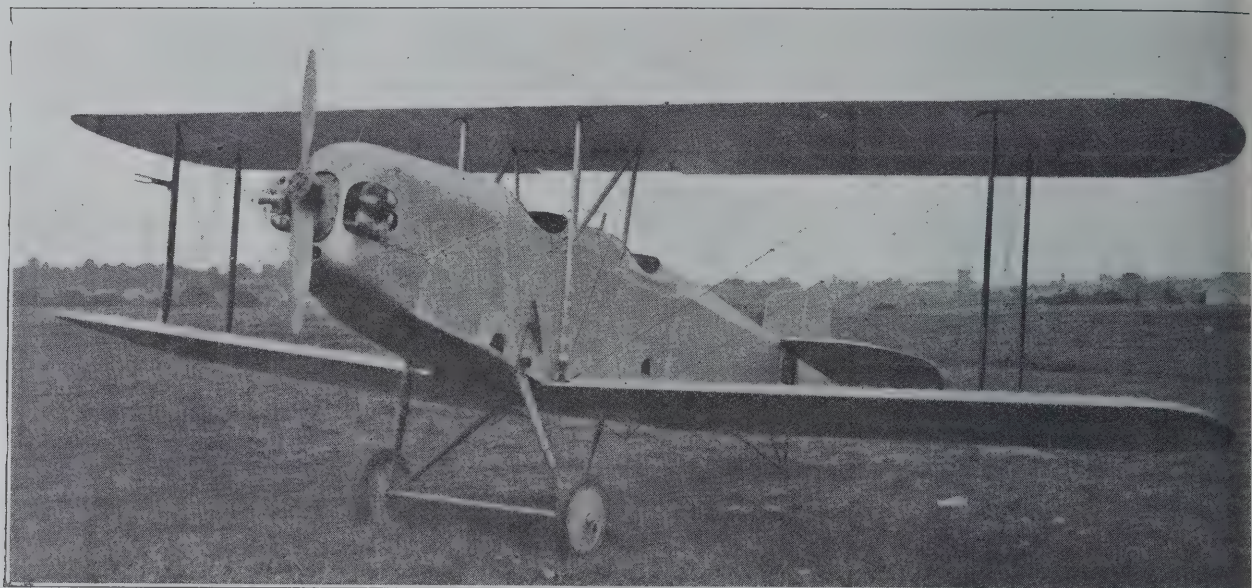
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The Beardmore Monoplane Wee Bee.

Cherub Engine.

No. 5.—The Westland Wood Pigeon.



The Westland Biplane Wood Pigeon.

This is a folding-wing biplane of normal outline, with wings of R.A.F. 15 section. The fuselage is of rectangular section, surmounted by a domed top fairing, and is built of spruce longerons and struts with swaged rod bracing except forward of the rear seat where rigid bracing is largely used, and the last bay under the tail where spruce diagonals and plywood covering are employed. The two cockpits are arranged in tandem, one under the leading edge of the top wing the other below the trailing edge.

Ahead of the front seat the top longerons are jointed and brought sharply down, and from the ends of this sloping section a steel tube structure is built out to carry the engine and the fuel tank as is shown in a sketch.

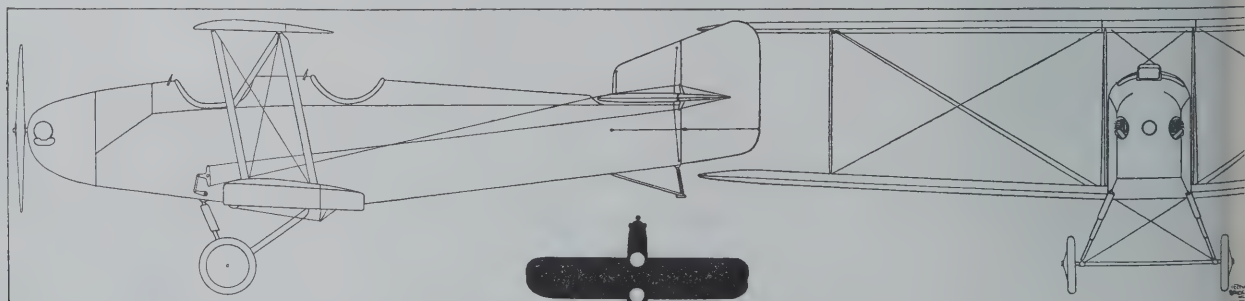
The undercarriage is of the Vee type with the front leg of the telescopic variety. The opportunity has been taken to fit this machine with an experimental oleo-pneumatic shock-absorber leg and this is shown in position in a photograph of the machine. At present this may not be described as to interior economy.

The normal shock-absorber leg for this machine, which is shown in a sketch, is distinctly ingenious and promises to be extremely effective. The upper portion of the leg is a plain oval section steel tube surrounded by a coiled steel

spring. The lower end of this tube passes inside another tube of considerably larger dimensions which is split, it with adjustable pinching screws, and lined with Felt. This allows a variable amount of frictional damping to be provided in order to limit the effects of the too-complete elasticity of the spring and so prevents undue bouncing.

The wings are built on two spruce channel-section spars with spruce and ply ribs and spruce drag struts. A single pair of struts is fitted to each side, and the interplane bracing is of streamline wire. The centre section struts are of the N type. The upper wing is flat but there is an appreciable dihedral to the lower planes. The wings are joined on the rear spar joints, and a jury strut is fitted at the lower spar inner ends to maintain the wings in truth when folded.

Flaps are fitted over the whole span of both top and bottom wings and are arranged to serve both as ailerons and as camber-changing devices. In this connection Mr. Westland of the Westland Company has developed an exceedingly ingenious control device which allows the flaps to be operated either automatically under spring control somewhat as in the case of the de Havilland automatic gear, or to be positively operated and locked in any desired position at the pilot's will. In addition in the first case the pilot can lock the loading of the controlling spring when in the a



The Westland Wood Pigeon.

Cherub Engine.

VICKERS LIMITED

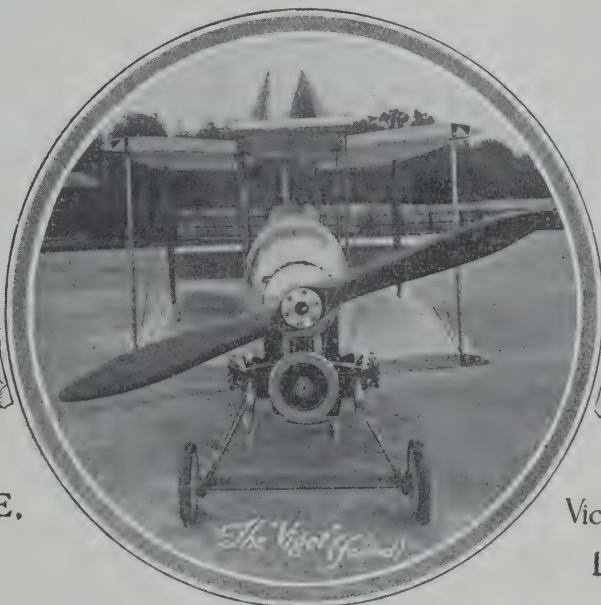


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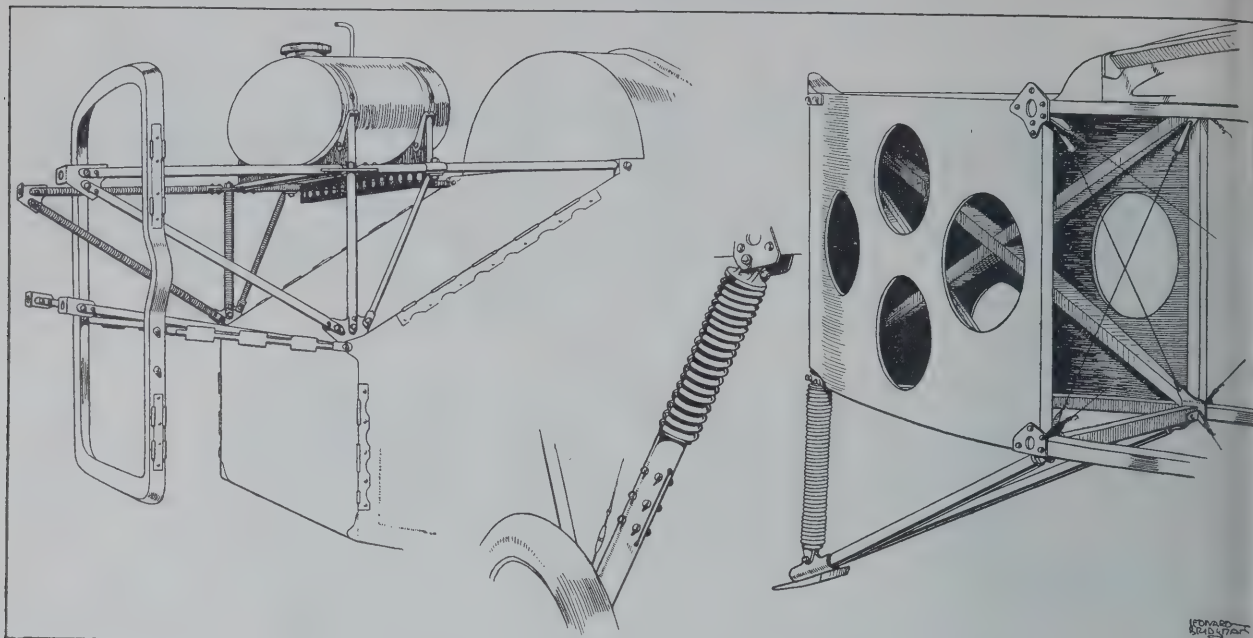
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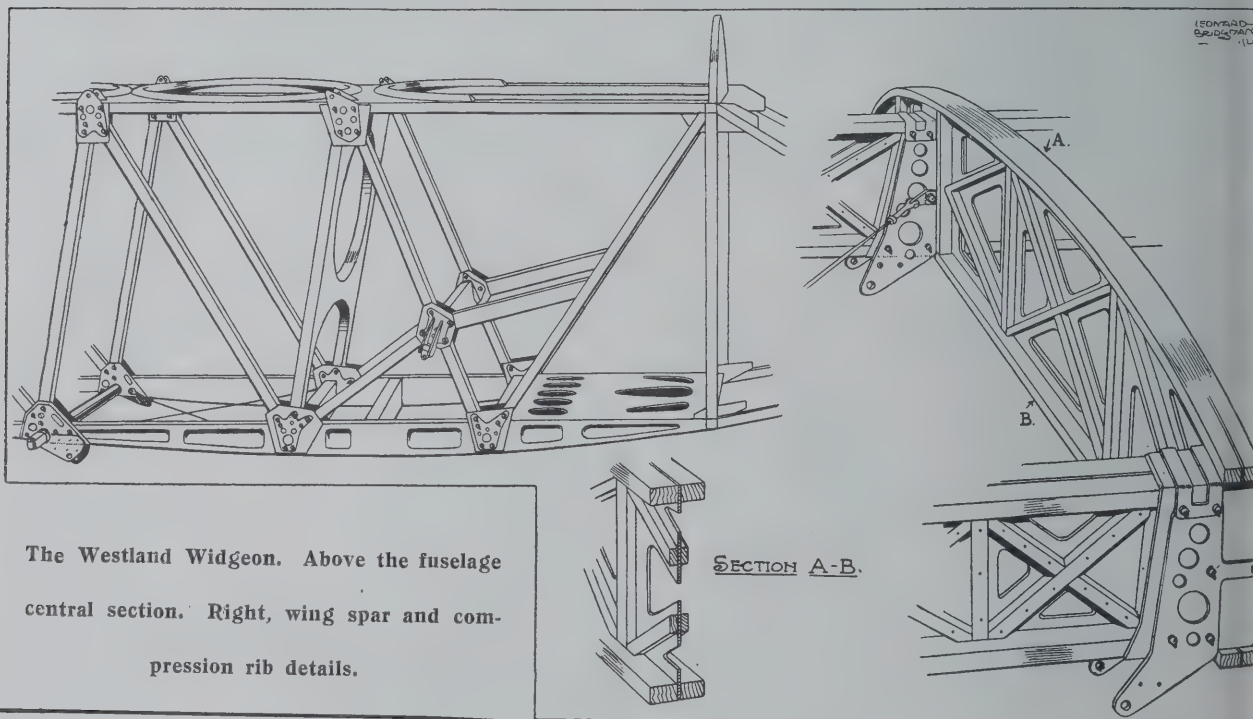


The Westland Wood Pigeon engine mounting, friction damped undercarriage, and tail skid.

order to secure the best results. Here again the opportunity afforded by the light aeroplane for practical testing of a new device has been seized upon, but unfortunately the details of the device may not be revealed. It may however

be said that the control gear is both simple and light. The Wood Pigeon is estimated to have a top speed of 30 m.p.h., a stalling speed of 32 m.p.h., and a climb of 300 feet per minute.

No. 6.—The Westland Widgeon.



The Westland Widgeon. Above the fuselage central section. Right, wing spar and compression rib details.

This is a thick-wing parasol monoplane. To some considerable extent the motive underlying the production of the Westland light aeroplane has been that of testing the light aeroplane as a practical method of experiment.

The Wood Pigeon is apart from certain details a perfectly normal thin-winged biplane. The Widgeon is distinctly unconventional, but it will have the same engine, carry the same load, and be of very closely the same total weight. Models of both machines have been tested in the Westland wind tunnel, and the tunnel results promise an identical performance. Thus the result of trials of the actual machines affords not only a direct comparison of the wind tunnel with full-size figures, but permits a direct comparison as between the two widely divergent types of aeroplanes.

The Widgeon fuselage is rectangular, with a domed fairing to the top, with spruce longerons, struts, and diagonals. The wings are carried above the fuselage on a pair of inverted Vee struts tied together at their apices by an horizontal

tube. These carry the hinge joints on the rear spars. On the bottom longeron of the fuselage below these upper hinge joints is a second pair of hinged joints—one on each side—carrying a pair of outwardly raking wing struts, and a third strut running close to the side of the fuselage to the inner end of the rear spar. The wing spar-roots project inward past both the rear spar hinge and the inner front spar hinge so that they meet on the centre line of the fuselage when they are extended.

To fold each wing with all three bracing struts turn round the common axis of the upper and lower hinge joints leaving no centre section in place.

The wings have their maximum chord and thickness about two-fifths of the half span from the centre line, where the bracing struts are attached, and tapers thence to the tips and centre. Thus the wing has quite a small chord depth in front of the rear seat and gives the minimum chord section to a clear view.

In this case also flaps are fitted over the whole span

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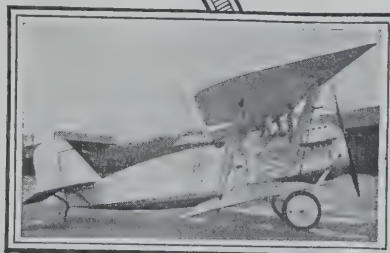
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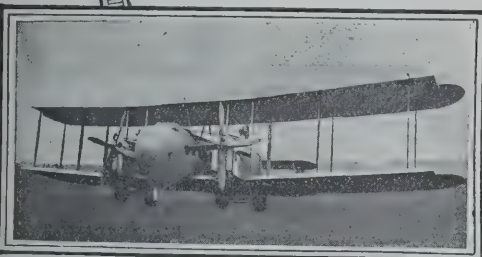
Naval
Use.



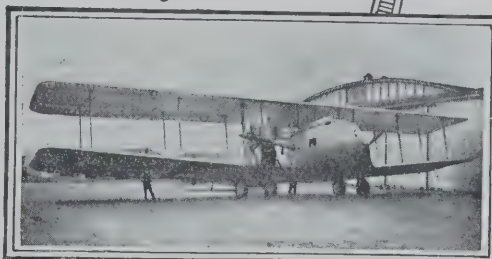
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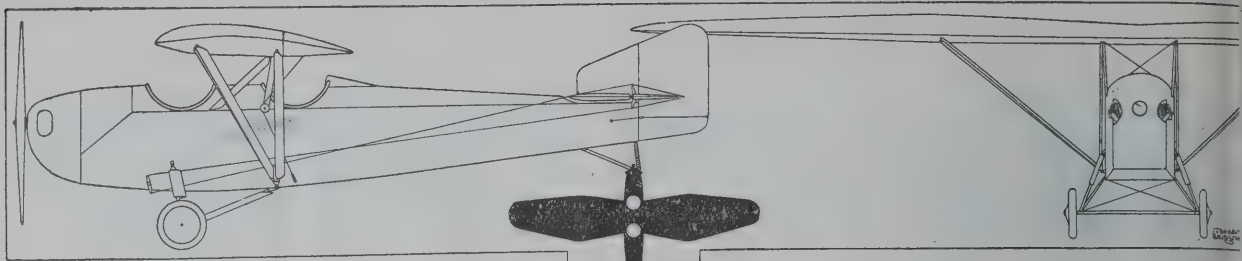
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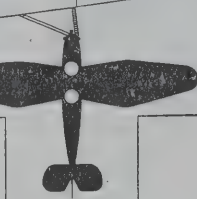
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The Westland Widgeon.



Cherub Engine.

will possess the type of control already mentioned in connection with the Wood Pigeon.

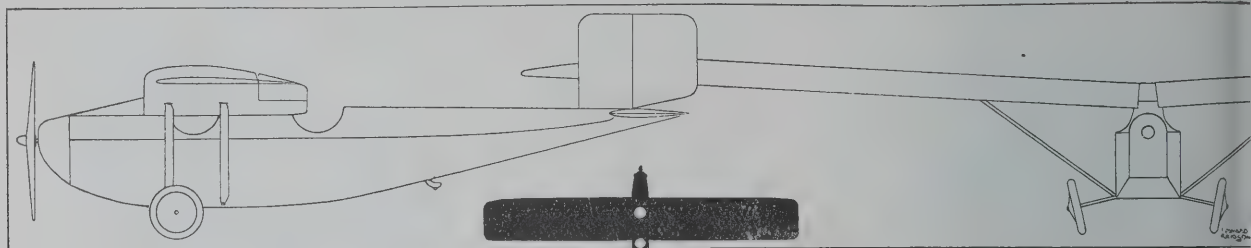
The wing spars are of somewhat unusual construction. They are essentially of H section type, the flanges consisting of two strips of spruce glued and screwed to each side of a three-ply web. In addition to the plywood web, there are stout spruce vertical struts with between each vertical, two diagonal members, glued and screwed to the three-ply on each side. The plywood web is lightened out between struts and diagonals, so that in reality it serves mainly as a mem-

ber for jointing up the spruce members. The compression ribs are of very similar construction. The normal ribs are a spruce N-girder construction.

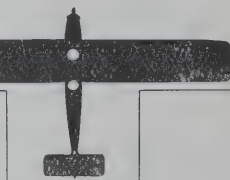
The wing flaps have their maximum chord at the section as that of the wings and also taper both inwards and outwards. They are built up on a large diameter dural tube acting as rear spar and torque tube combined and controlled entirely from levers at the inner end of the flap.

The undercarriage will be of the friction damped type described in connection with the Wood Pigeon.

No. 7.—The Air Navigation and Engineering Co.'s Monoplane.



The A.N.E.C. Monoplane.



Anzani Engine.

This machine is of the same general type as the very successful A.N.E.C. single-seaters entered for last year's light aeroplane competition. A thick-section monoplane wing is attached to a narrow fairing structure built into the top of a rectangular fuselage and braced by two struts, running out from the bottom of the fuselage to less than one-third of the half-span from the centre line.

The crew are carried in tandem, one below the wing between spars and one behind the trailing edge. The front passenger's head passes up into the wing, and his view upwards is through transparent panels. Ahead he is able to see on either side of the coaming which encloses the wing supports.

The fuselage is built on six spruce longerons with spruce and three-ply bulkheads and is covered with three-ply. The crew sit practically on the floor, with their eye-level just below the wing chord.

The undercarriage consists of a bent steel tube axle pas-

ing across the fuselage and projecting considerably from side. This axle is anchored against torque and side loads at one point only, and is given full freedom to deflect under landing loads. It forms the sole shock-absorbing device.

The wings are built on two spars of box section, and covered with three-ply top and bottom back to the rear spar. They are of parallel chord and section except for a slight abrupt thinning out and a slight rounding off at the tip.

The tail unit consists of a fixed tail plane of very narrow chord to which is hinged a much larger one-piece elevator. Above this is mounted a tall rectangular fin and a considerably larger nearly rectangular rudder.

The engine fitted is the 1,098 c.c. Anzani two-cylinder engine mounted with the cylinders downwards exactly as in the machine was mounted in last year's machine. The expected performance is a top-speed of 85 m.p.h., a minimum speed of 32 m.p.h., and a climb to 3,000 ft. in 7½ minutes.

No. 8.—The Short Satellite.

This machine has already been briefly described in THE AEROPLANE. It is a cantilever monoplane with wings set approximately half-way up an oval section fuselage, and is largely of metal construction. The crew are seated in tandem one ahead of the front spar, and the other between front and rear spar. The front seat thus gives as nearly perfect a view as is possible, and the view from the rear seat is only limited downwards by the wing.

The fuselage is entirely of duralumin, the sheet-metal skin supported by box or flanged sheet formers taking all flying loads. The undercarriage has two half axles, hinged to the

bottom of the fuselage and supported by vertical telescopic legs running up to the front main spar root, and braced by a pair of thrust tubes running backwards to the bottom of the fuselage.

The wings are of composite construction, the spars built up of laminated mahogany flanges and three-ply web. The ribs are Warren girders of duralumin trough section. The chord of the wing is uniform throughout the span except for a rounding of the tips, but the section tapers in thickness from root to tip. The mean centre line camber of the wing is uniform.



The A.N.E.C. Monoplane with

Anzani engine.

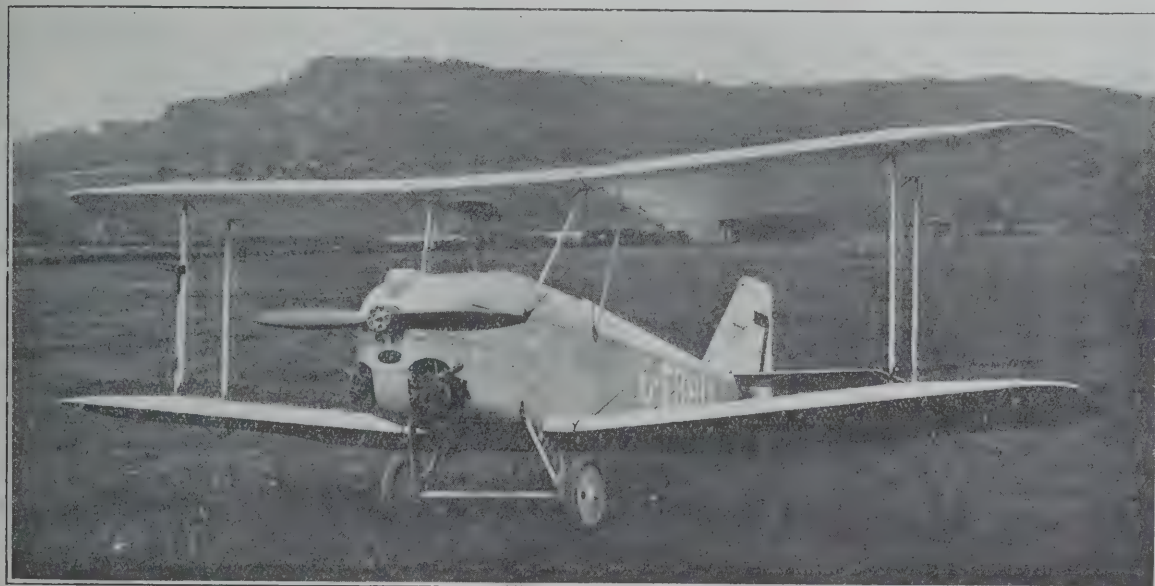
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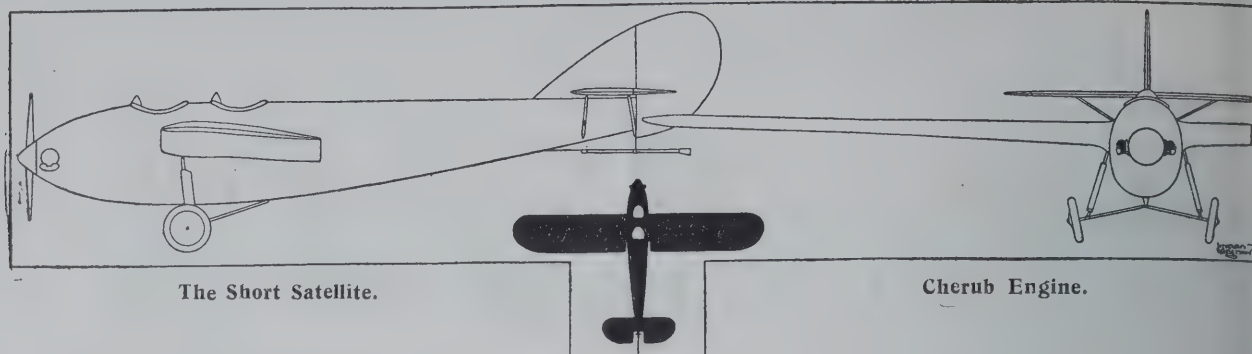
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The Short Satellite.

Cherub Engine.

Wing flaps extending over the whole span, which are to be used both as ailerons and as camber-changing devices are fitted. The top surface of the wings is horizontal, the effective dihedral being solely that due to the tapering thickness of the section.

The tail unit is of normal form and is framed in steel tube with duralumin ribs. The fixed tail plane is in one piece and is carried across the top of the fuselage and braced by two pairs of struts. It is thus appreciably higher than the

wing chord line. The elevator is divided and the rudder extends to the bottom of the fuselage.

The Cherub engine is mounted on an aluminium casting attached to the fuselage front frame, with an interposed fireproof bulkhead. A spinner is fitted to the airscrew and the cowling of the engine is unusually complete.

The performance expected is a maximum speed of 100 m.p.h., a stalling speed of 37 m.p.h., and a climb at sea level of 285 ft. per minute.

No. 9.—The Supermarine Sparrow.

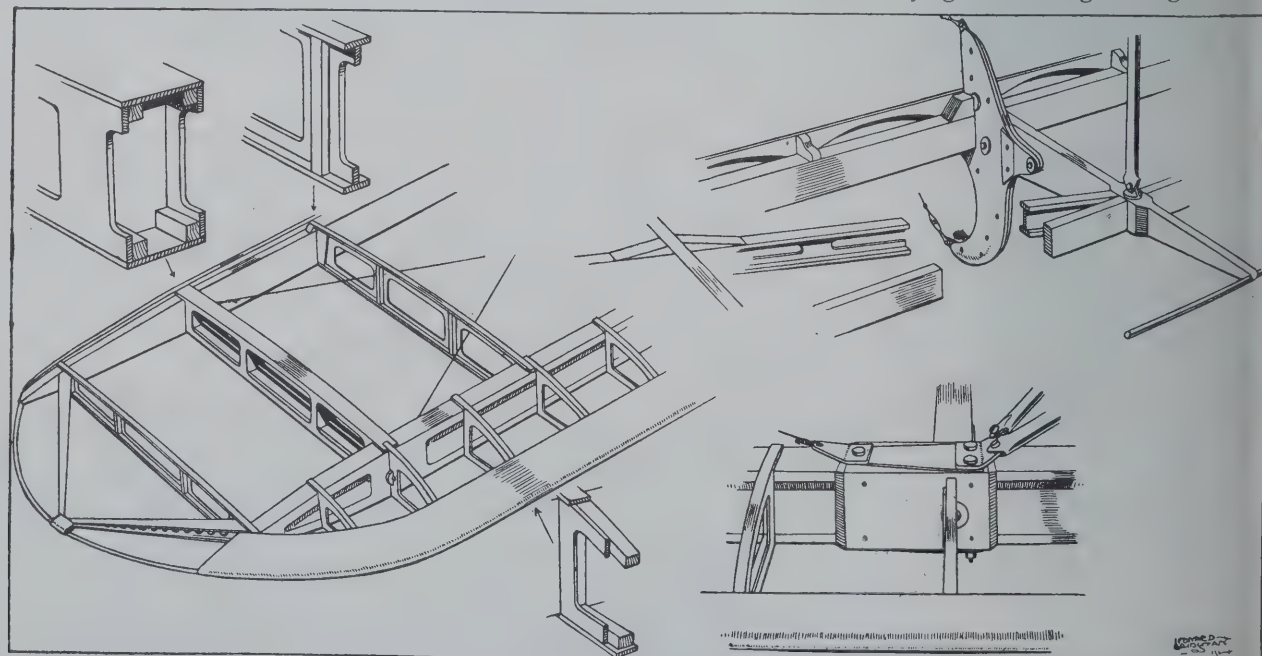


This—the first land machine built by the Supermarine works since the early days of the war—is a very neat biplane with a top wing of much greater chord, and appreciably larger span than those of the bottom. In addition the wings are so staggered as to bring the trailing edge of the lower wing vertically below that of the upper wing. The two wings are also of different section, the upper wing being an American Sloane section, the lower that known as A.I.D. Both these sections are of the low-resistance, high-speed type.

The fuselage is rectangular built with spruce longerons,

spruce verticals and spruce diagonal members, and covered with three-ply. The crew are seated one below the top wing section and one behind the rear spar. The trailing edges of both wings are cut back from the fuselage to give the passenger in the rear seat a view downwards.

The wings are built on spruce spars of channel section with ribs of spruce and three-ply. Drag struts are box-section ribs and the leading edge nose is covered with three-ply. Outwardly raking interplane struts of N type are fitted, one on each side. These are of steel tube with fairing. The usual streamline wire flying and landing bracings are fitted.



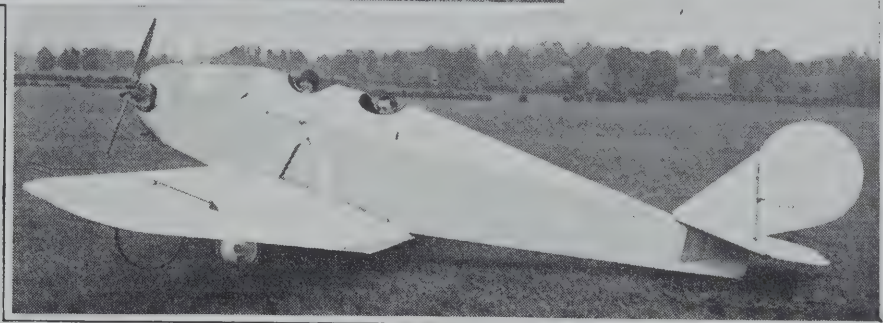
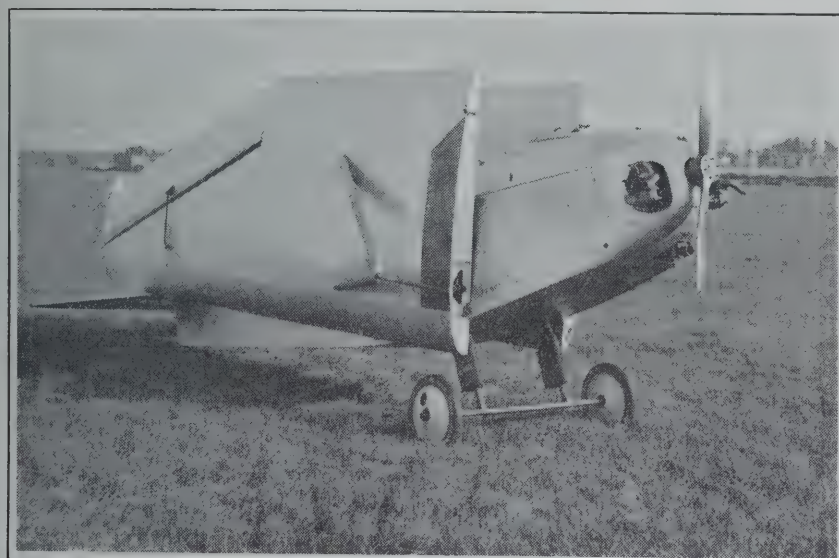
The Supermarine Sparrow.—Wing details.

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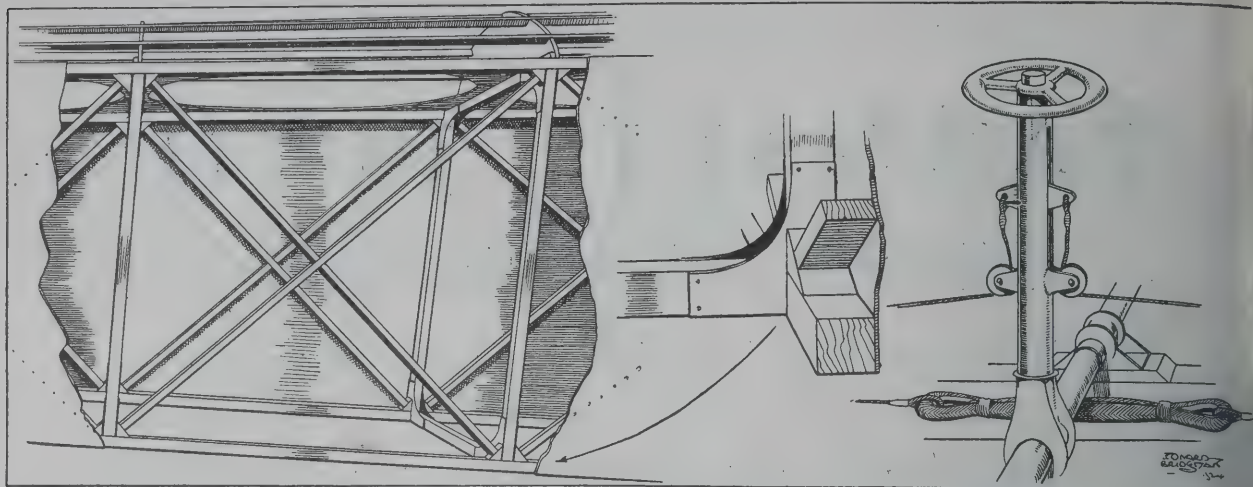
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Supermarine Fuselage Construction and Arrangement of Flap Control gear.

The structure of wings, ribs, and strut fittings are shown by a sketch.

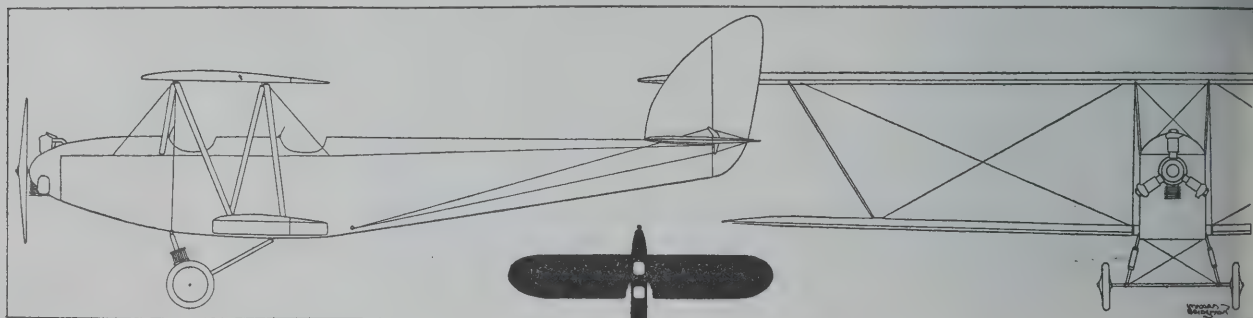
Flaps are fitted along the whole span of both wings and are used both as ailerons and camber changers. A very simple and neat flap-control gear is fitted which is also shown in a sketch. The two control levers are mounted on a fore and aft rocking shaft, and on this shaft the ordinary lever for the aileron wire is replaced by a column, carrying two stationary pulleys, over which the aileron "pull-down" wires pass. The ends of these wires are then fastened off to a pair of lugs which can be moved up and down this column by a screw (inside the column) and a handwheel at the top. It will be seen that screwing up the lugs away from the pulley

shortens the wires and pulls down the flaps. The balance wires for the flaps instead of being inextensible are joined by a length of shock-absorber elastic, which is stretched when the flaps are pulled down.

The wings fold in the usual way about hinges on the inner ends of the rear spar, the wing flaps being folded right down when the wings are stowed.

The undercarriage is of the Vee type with telescopic main legs, sprung on rubber rings. The tail unit is of normal form, comprising fixed tail plane, divided elevators, fin and rudder. The tail plane setting is adjustable on the ground.

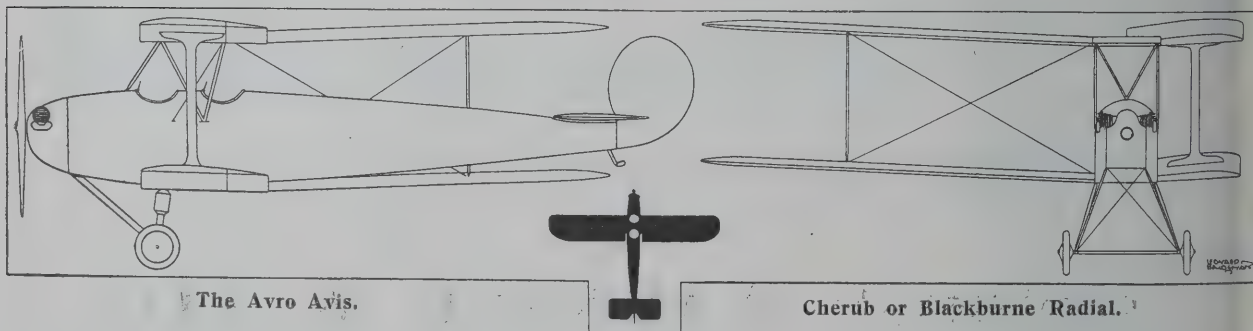
The engine is a three-cylinder Blackburne radial, 1,096 c.c.



The Supermarine Sparrow.

Blackburne Radial Engine.

Nos. 10 and 11.—The Avro Avis.



The Avro Avis.

Cherub or Blackburne Radial.

Despite the two entries made by A. V. Roe and Co., Ltd., there is in fact only one Avro two-seater light aeroplane. But for that machine there are two alternative engines—the Cherub and the Blackburne radial, which are mounted on interchangeable fittings so that the change from one to the other may be made in a few minutes. Thus it may be found possible to put the one machine through the prescribed test with both engines.

The Avis is in general design a perfectly normal tractor biplane with equal top and bottom wings, fitted with flap gear and folding wings.

The fuselage is rectangular with a domed top. The four main longerons of spruce are connected together with

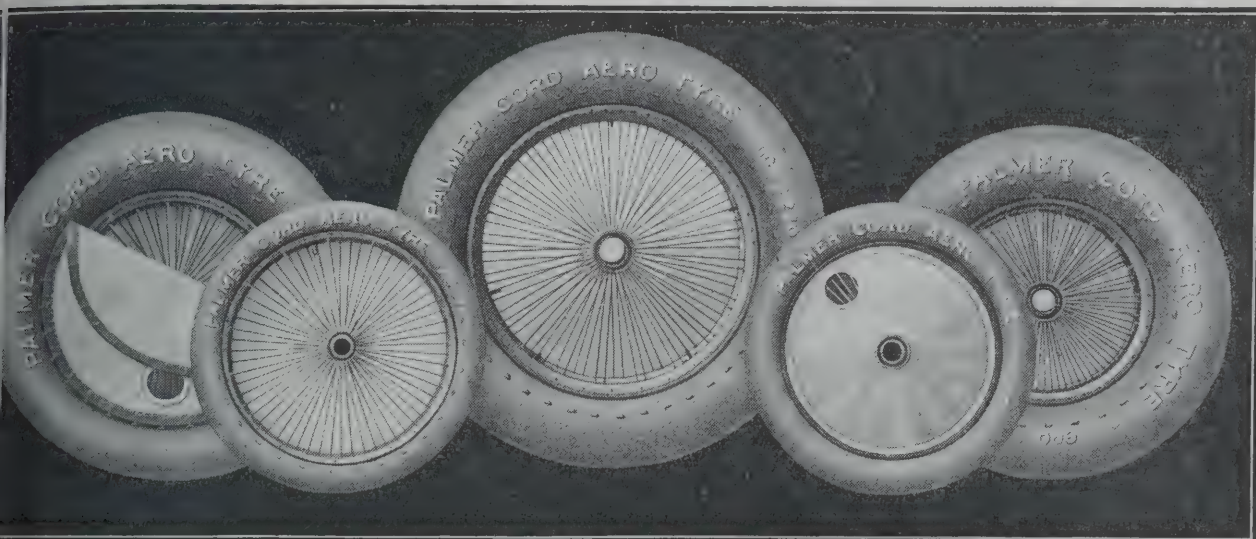
diagonal spruce struts, forming a Warren bracing. The joints—other than those for wing, undercarriage and engine attachments—are of the three-ply fish-plate type, and the longerons are stiffened by three-ply flitches, glued and bradded on the outside of the longeron. The domed top fairing is of very thin three-ply carried on hoops between the longerons, thus serving greatly to increase the stiffness and rigidity of the whole fuselage structure. The two seats are arranged in tandem very close up to each other, with rudder pedals for the after passenger set at each side of the front seat. These seats are roughly under front and top spars respectively.

The wings are of normal construction, with channel



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5x55	168	m/m 111.12	m/m 25.4	m/m Central	700x100	96	m/m 178.	m/m 55.	m/m 132/46	1000x150	201	m/m 185.	m/m 60.32	m/m 125/60
0x60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	1000x180	148	220.	80.	Central
0x60	30	89.	31.75	Central	650x125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
0x60	21	160.	28.	Central	750x125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900x200	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
0x75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
0x75	78	178.	44.45	132/46	800x150	82	185.	55.	135/50	1100x220	134	220.	66.67	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	"	136	250.	80.	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	1250x250	133	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
0x100	77	178.	44.45	132/46	1000x150	169†	185.	55.	135/50	1500x300	115	304.8	101.6	Central
"	92	185.	55.	135/50	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	95	185.	55.	Central	"	131	220.	66.67	Central	1750x300	139	400.	152.4	Central
					"	150	185.	55.	Central					
					"	167	185.	55.	125/60					
					"	174	250.	80.	Central					

*Wheels Nos. 161, 163 and 211 are of stronger type than the other wheels for 800 x 150 tyres.

†Wheel No. 169 is fitted with Ball Bearings.

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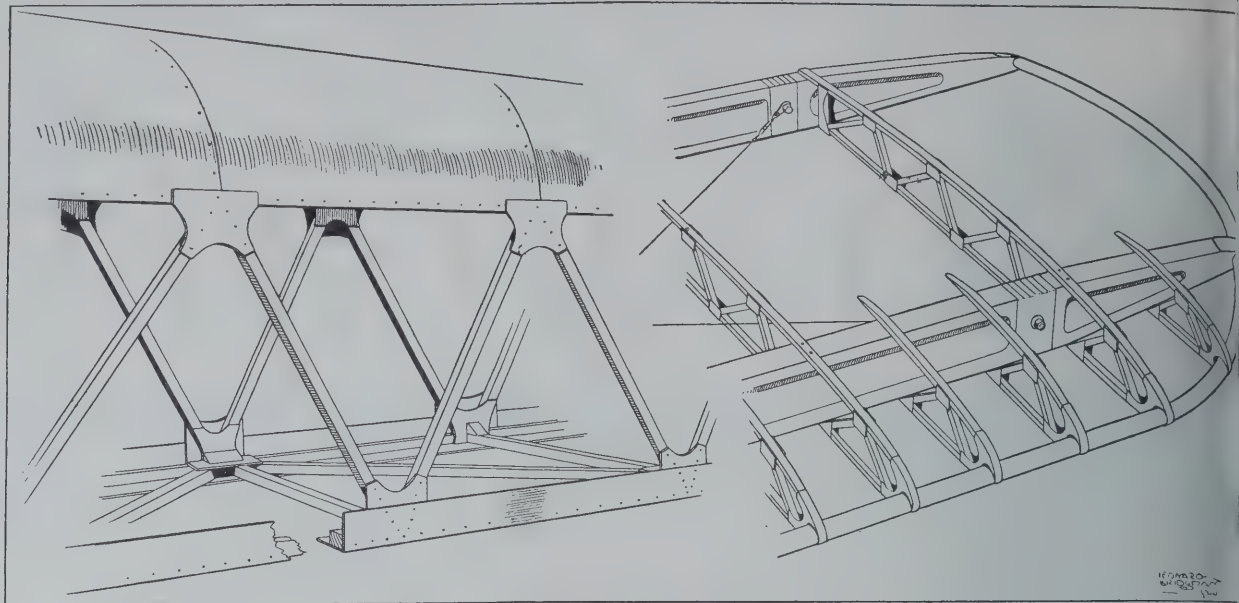
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PARIS 31, Rue la Boétie.

(240)

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



The Avro Avis Fuselage and Wing Structure.

spruce spars and spruce Warren girder ribs spaced somewhat widely apart. Very frequent nose riblets are used to maintain the shape of the leading edge.

The wings are separated by one single I strut on each side which strut attaches to both front and rear spars, and to a specially robust rib between spars. The lift and landing wires are attached to this rib between spars—that is there is no separate bracing for front and rear spars.

Flaps are fitted along the whole span serving as ailerons and camber changers. The method of operation employed consists of mounting the fore and aft rocking shaft, coupling the two control sticks at its rear end on a ball-race which is moved vertically by a screw. A cross lever on the rocking shaft is linked to the levers on the ends of the lower wing flap torque tubes, thus, as the rocking shaft is moved upwards, the flaps are pulled down.

The wings fold about the rear spar joints, and the aileron

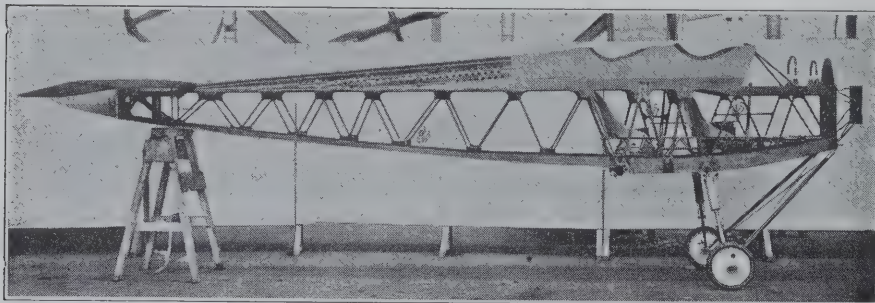
torque tube at the fuselage junction is jointed to the control tube by a universal joint. Thus no control connection is broken or even slackened off to fold.

The undercarriage is of the Vee type with an "O" shock-absorber incorporated in the rear leg, which is attached below the front spar joint. The forward leg runs to the front bulkhead of the fuselage, which is of the proof variety.

The engine mountings which attach to the four corners of this bulkhead are of steel tube and generally pyramidal in form, their exact arrangement varying with the engine.

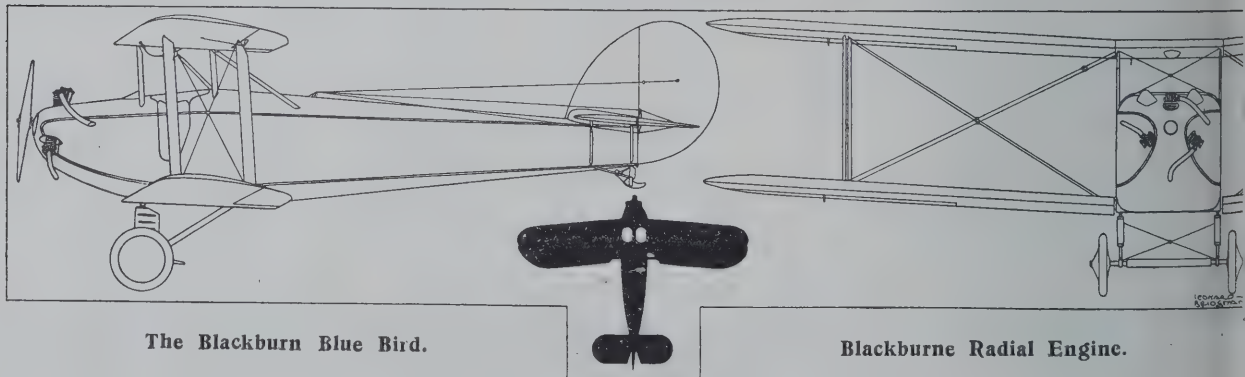
The fuel tank is carried in the top fairing ahead of the front seat, giving a short pipe-line and a good head.

The tail unit consists of a cantilever tail plane and elevators, with a rudder of the characteristic Avro shape, somewhat less balanced than in the well-known 504 type.



The Fuselage of the Avro Avis.

No. 12.—The Blackburn Blue Bird.



The Blackburn Blue Bird.

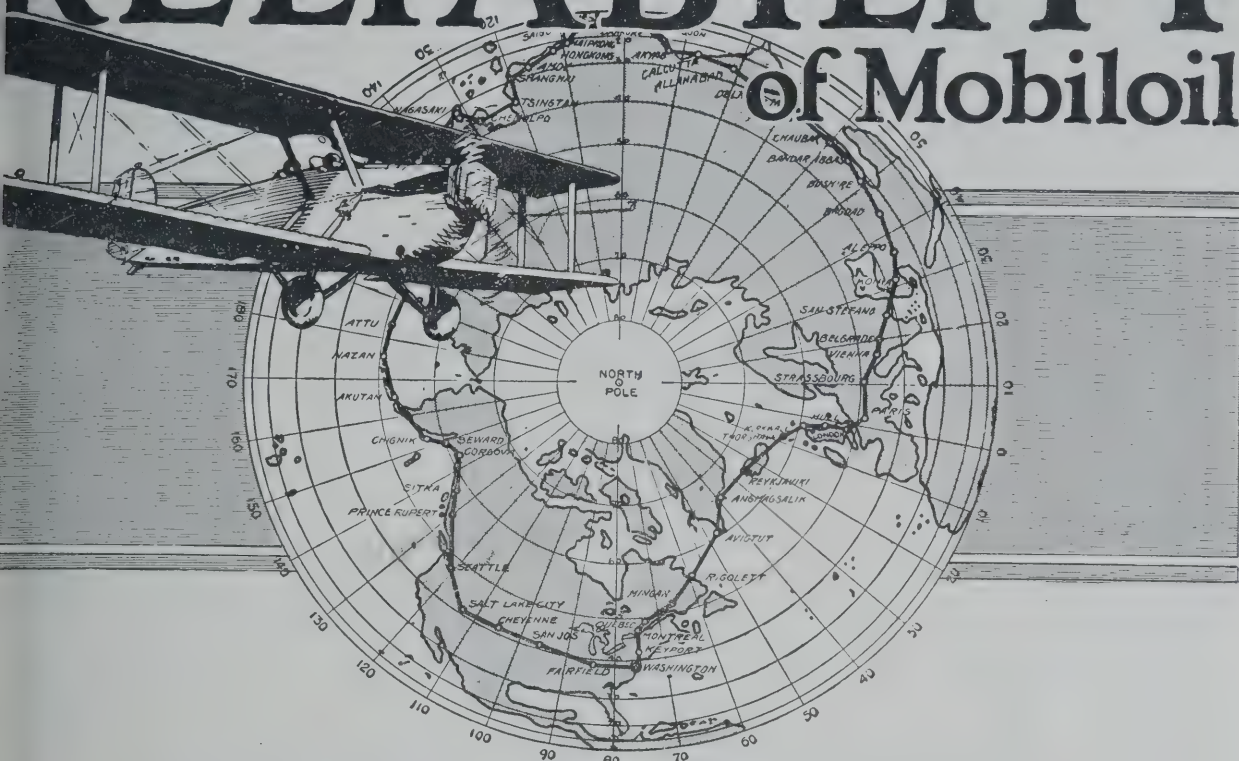
Blackburne Radial Engine.

The Blue Bird has been designed by a staff which has had some considerable experience in the design of machines intended for deck-landing, and in which therefore minimum flying speed and the maximum possible controllability at low speeds are qualities of the highest importance. Recollecting that the system of marking to be employed at the Lympne contests gives very great weight to these same qualities, one need not be altogether surprised to find that the Blue Bird

has a marked likeness to certain larger Blackburn aircraft, particularly the Swift and Dart torpedo-carriers.

The two seats are arranged side-by-side on the C.G. arrangement calling for a somewhat large cross-section of the fuselage, but undoubtedly contributing to the controllability at low speeds. The fuselage is rounded off top and bottom with slab-sides, and of excellent stream-line form. The fore part is built up on two extremely stiff box-fr

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THROUGHOUT their successful globe-encircling flight the United States Airmen used Mobiloil exclusively for the lubrication of their machines.

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pendence of judgment. This reliable oil was designated, bought and paid for.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

fore and aft of the cockpits, and is partly of rigidly triangulated and partly of monocoque construction. The after part is built on four longerons with strut joints of three-ply gusset pieces reinforced by duralumin plate. Doors are provided on each side to give entrance to the cockpits.

The wings have a distinct sweep back a noticeable dihedral, and a slight stagger. They are so set on the fuselage that they present a very large angle of incidence when the machine is at rest on the ground. The interplane bracing is of the single bay type, the interplane struts being of duralumin tube, and both flying and landing wires are 2 B.A. streamline section.

The top centre section is built on steel tube spars, braced by tie rods and supported on vertical steel tube struts. These struts are braced athwartships, and the rear ones are in addition braced back to the top of the fuselage by a steel tube strut on each side. This structure allows a clear entrance through the side doors already mentioned.

The wings proper are built on spruce spars, with Warren girder ribs, duralumin drag struts and swaged rod drag bracings. The wings fold as usual about the rear spar roots.

The petrol tank—which for the competition has a capacity of four and a-half gallons—is mounted in the top centre section. It can readily be removed and replaced by one of larger capacity. Great care has been taken to ensure that in any position of the machine a quantity of petrol will be

retained in the sump and to prevent surging, and very filters are fitted in the petrol system.

The engine, a Blackburne radial, is mounted ahead of the fire-proof bulkhead on a triangulated steel tube structure with the crankshaft axis appreciably inclined upward. A feature of the installation worthy of note is the fitting of a Pyrene fire extinguisher directed into the front of the engine compartment close to the carburettor.

The undercarriage is of the Vee type with a vertical scopic leg below the front spar joint and rear legs run to below the rear spar hinges. The axle is faired to the fuselage section.

The tail unit is of very ample size, particularly as regards the rudder and fin. The tail plane is adjustable and the halves of the elevator are operated by independent lines.

As the idea underlying the competition is that of producing a useful training machine the design has been laid out with an eye to durability, maintenance of truth and special regard to service conditions and to ease of operation. As the type, if it comes into use for the intended purpose, will probably be fitted with an engine of larger capacity the design has been so arranged that three cylinders of larger bore than those now fitted can be substituted without making any other alterations whatever.

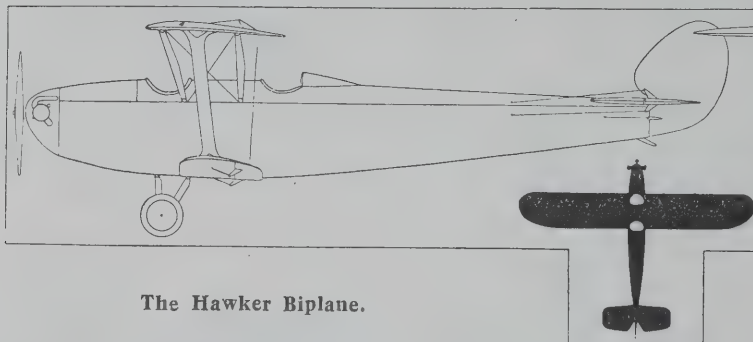
The estimated performance of the Blue Bird is, top speed 74 m.p.h., and stalling speed 33 m.p.h.

No. 13.—F. E. Raine.

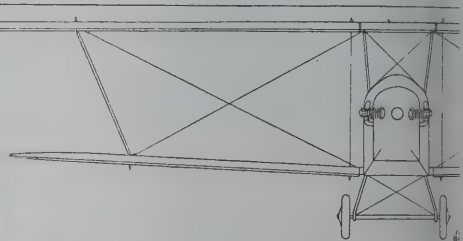
The machine entered by Mr. F. E. Raine, of Christchurch, is a low-wing monoplane with top strut bracings. It was intended to fit a four-cylinder in-line air-cooled engine which had been specially designed for the machine, but it has been

found impossible to complete this in time for the competition, and another engine will therefore be used. Unfortunately neither drawings nor photographs of this machine are yet available.

Nos. 14 and 15.—The Hawker Biplanes.



The Hawker Biplane.



A.B.C. Scorpion or Anzani Twin Engine.

These two machines will differ, if at all, only in the type of engine fitted. One of them will use the A.B.C. two-cylinder Scorpion, the engine to be used in the other is at the moment uncertain, but will probably be the Anzani Vee twin.

The machines are single-bay folding biplanes with a top wing larger in chord and span than is the bottom, and with one outwardly-raking I strut per side.

The fuselage is rectangular surmounted by a domed fairing, and is built on four spruce longerons triangulated by spruce struts. All the fuselage members are spindled out. Cockpits are in tandem, one under the leading and one under the trailing edge of the centre section. The lower wing root is built out from and faired into the fuselage side.

The wings are built on spruce spars and are fitted with the now almost universal Warren girder type of rib. The

drag struts, are specially stiff box ribs, that over the being of particularly sturdy construction.

Flaps which serve both as ailerons and camber change are fitted to both wings, the flap-control gear being fitted to the rear seat.

The undercarriage is of the normal Vee type with spruce struts and a rubber spring axle.

The tail unit consists of a balanced rudder, fixed plane, and divided elevators, and is entirely devoid of internal bracing.

The Scorpion engine in the first machine is supported in a duralumin housing and steadied by steel tubes running from the bottom corners of the fire-proof bulkhead up to the top of the crankcase. The fuel and oil tanks fit into the engine compartment on top of the fuselage, giving a short direct feed to the carburettors of the A.B.C.

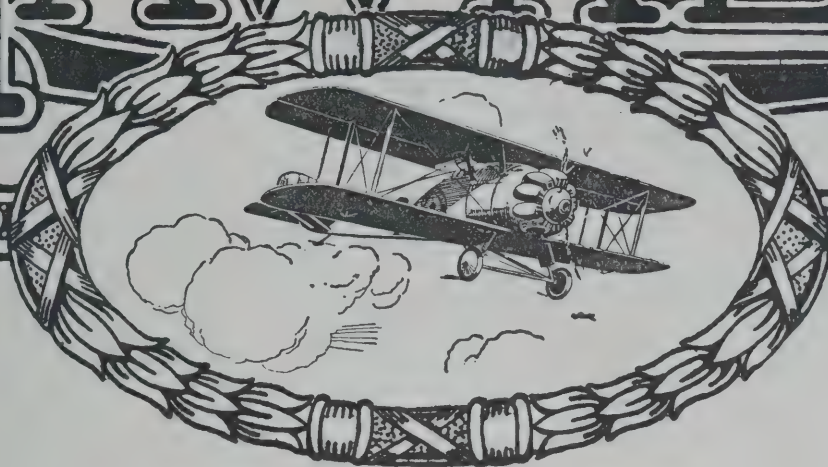


The Fuselage of the Hawker Biplane.

The engine in this photograph is the A.B.C. Scorpion.

A.B.C. Scorpion.

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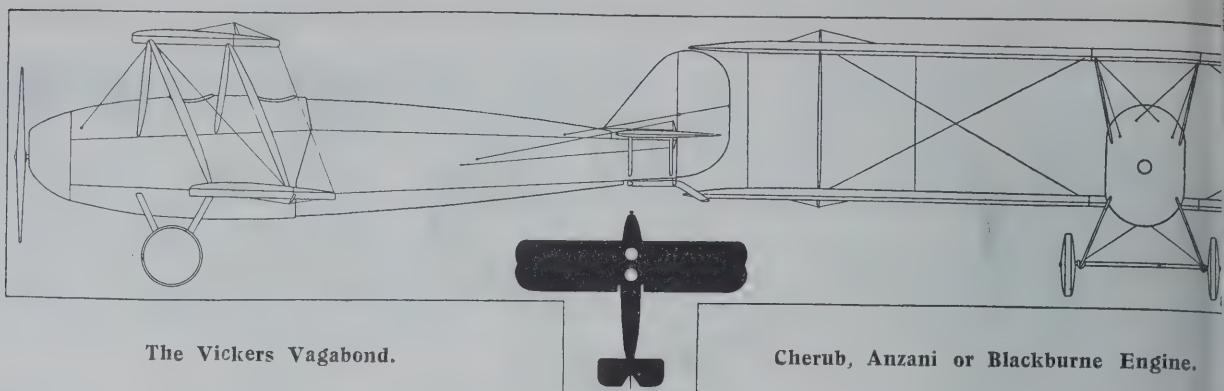
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No. 16.—The Vickers Vagabond.

This machine is another tractor biplane with tandem seating, and folding wings. The fuselage is of the standard spruce longeron and strut type, with swaged rod bracing and metal fittings of orthodox type, notable however for their minuteness and lightness. This fuselage is built in two sections, jointed behind the rear seat.

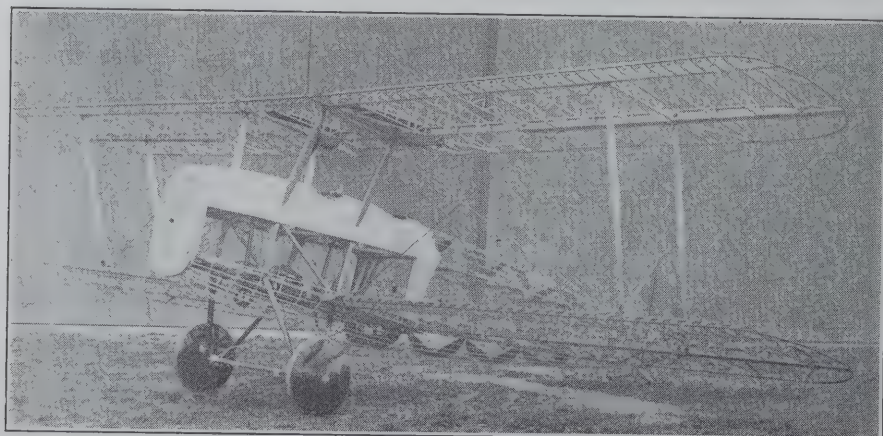
The joints at the bottom longerons form hinges, those at the top corners are made by multiple-start quickthread screws in ball joints. These screws are controlled by a chain and cable gear from a point between the two seats, thus allowing variation of the tail plane incidence by moving the whole after part of the fuselage about the lower hinges.

In order to permit this movement of the whole tail out leading to changes in the length of control wires the elevator and rudder wires are brought to pulleys are closely on the hinge line of the fuselage. This has resulted in a very neatly-designed but somewhat formal assemblage of pulley fittings at this point.

Top and bottom wings are equal in span and chord devoid of stagger or sweepback. They are built on cl spruce spars, with ply and spruce ribs, tubular drag and swaged rod drag bracing. Both wings are fitted ailerons, and the lower wing has a hinged trailing over the whole span. This however is merely to allow fold down and clear the fuselage when the wings are fo

It is not definitely decided which engine is to be used. The choice is believed to lie between a Cherub with a reduction gear or a Blackburne three-cylinder radial, but the machine has been designed so that practically any engine of 1,100 c.c. or of 1,500 may be mounted in it.

The estimated speed range of the Vagabond is 33 to 74 m.p.h., the rate of climb at sea-level is 300 ft. per minute, and the service ceiling 8,000 ft.

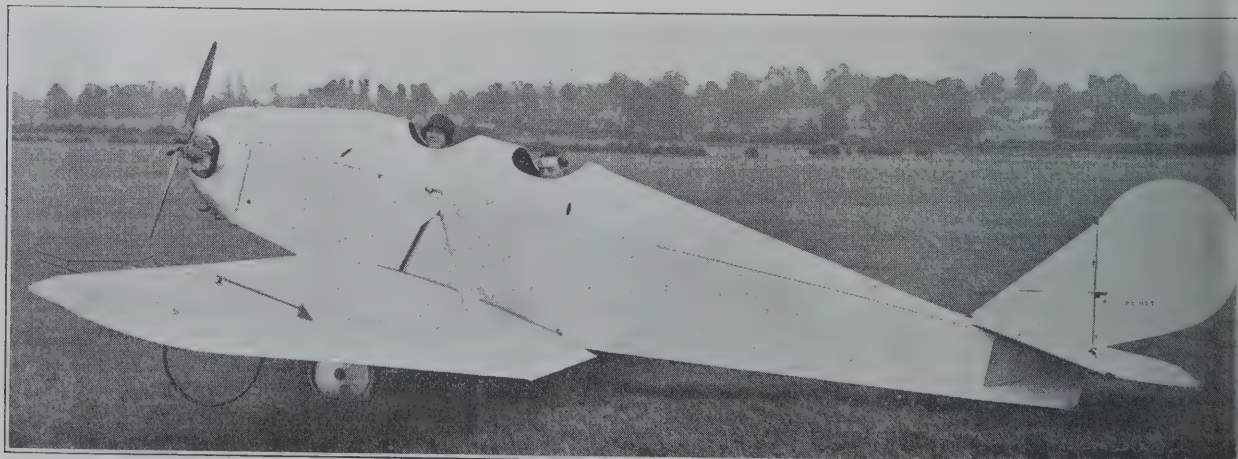


The Vickers Vagabond in skeleton

Nos. 17 and 18.—The Parnall Pixie III and IIIa.

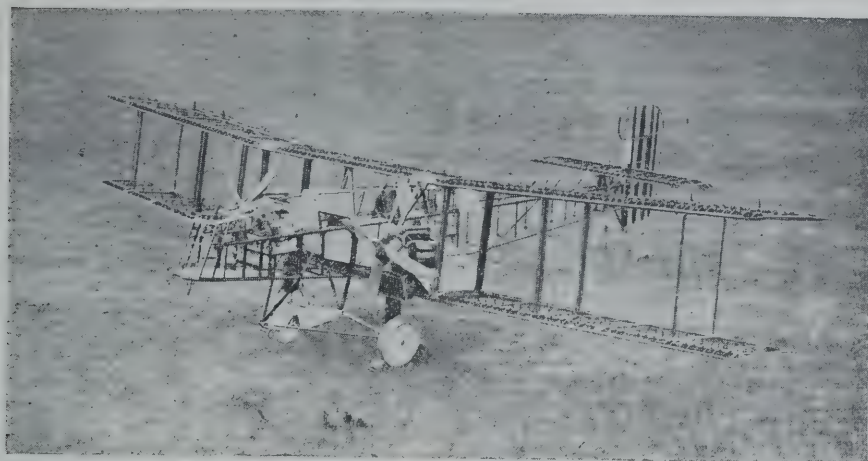
Here again, although there are two entries, there is really only one machine, although in one case that machine is a monoplane and in the other a biplane. The first is in all essentials a somewhat enlarged version of the Pixie monoplane which did so well at last year's Lympne meetings. It is believed that this machine will be found to be an ex-

cellent all-round two-seater, but that it will not possess sufficiently low low speed to win the present competition. Solely for the purpose of mark-gaining a readily attachable top wing has been provided which will so reduce the machine's minimum speed as to make it a certain 100 m.p.h. gainer. The whole of the monoplane version is included.



The Parnall Pixie III with Cherub Engine.

1919 — 1924



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THIS advertisement is the ninth of an interesting series of announcements dealing with the design and construction of Boulton & Paul Aeroplanes, appearing at regular intervals in this journal.

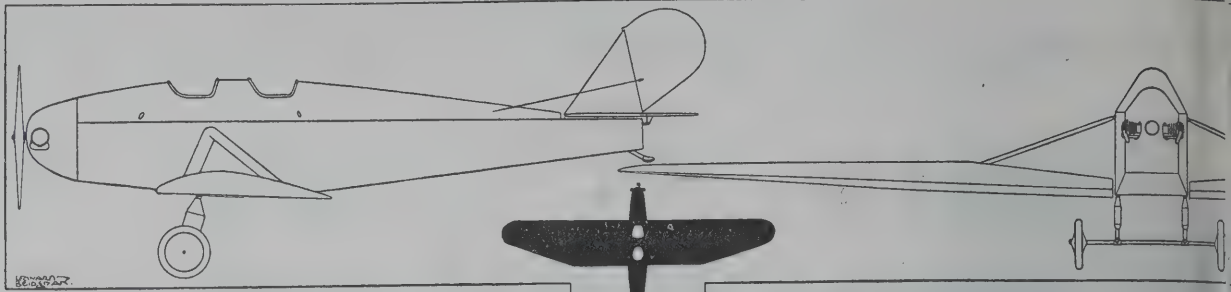
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The Parnall Pixie III Monoplane.

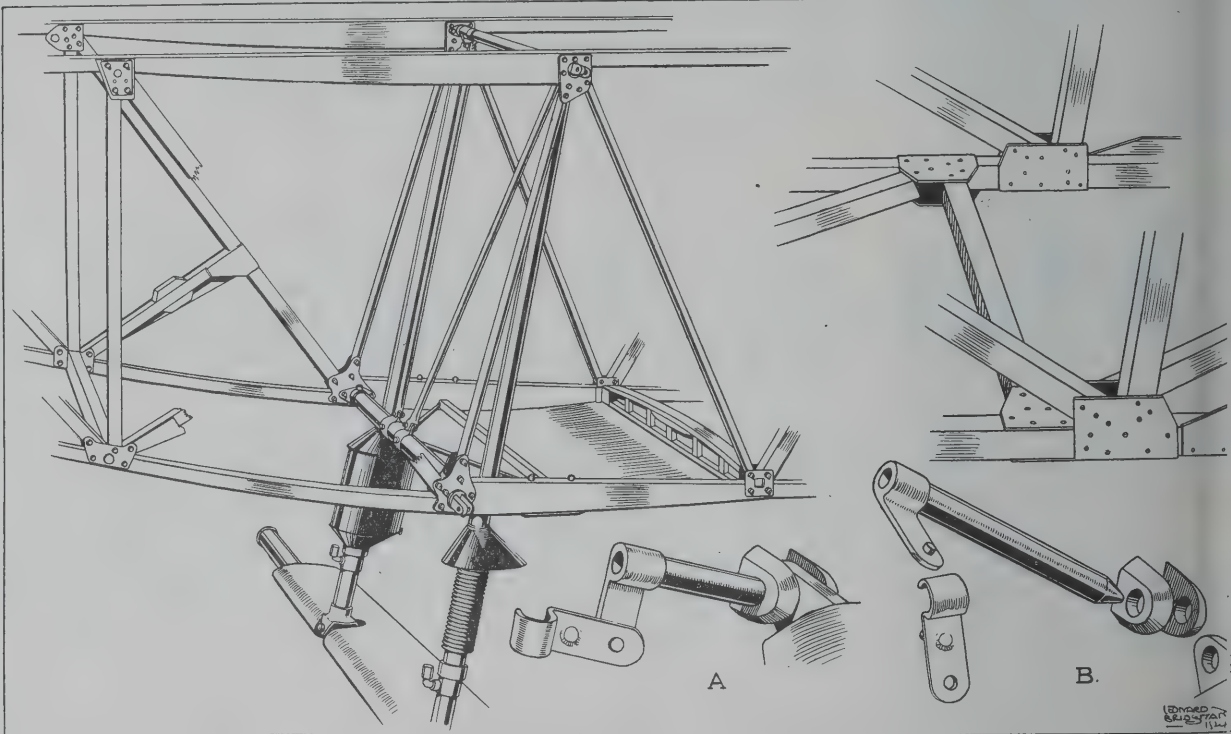
Chernub Engine.

the biplane, and therefore a single description, followed by a note of the additions required for the biplane conversion, will suffice for these two machines.

The fuselage is rectangular built on spruce longerons triangulated by spruce struts glued and three-ply fish-plated in place. At the points of attachment of the wings and the wing-bracing struts steel tubes replace the spruce struts, and appropriate steel fittings are used for joints. The two cockpits are arranged one ahead of the front and one behind the rear spar.

The monoplane wings are attached to the bottom of the

The leading edge is straight, the taper being achieved by sweeping forward the trailing edge. There is one straight front spar, a three-ply and spruce box, running from root to tip. Another spar of similar type runs parallel to this but ends at the point where the wing starts to taper. From this point to the tip of the front spar runs a third spar, which is pin-jointed to the inner rear spar. The wing section has a maximum thickness at the point of attachment to the bracing struts, and tapers both inward and outward from the maximum section. The section employed throughout is of the flat-bottomed type.

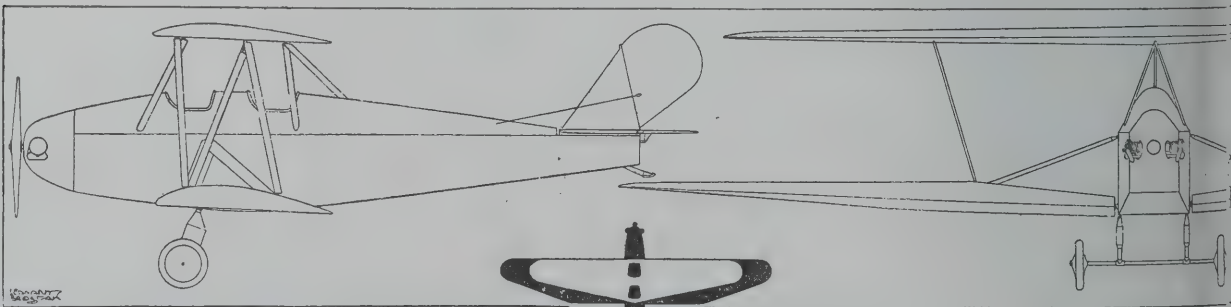


Pixie Details.—Left, central section of fuselage with undercarriage. Right, normal fuselage structure. Bottom, locking device for wing spar pins.

fuselage, and are braced by two struts forming an inverted Vee whose apex is attached to the top rail of the fuselage, and whose other extremities run to front and rear spars some third of the half-span from the fuselage.

These wings have the characteristic form of the earlier Pixie's wings. In plan they are of uniform chord over the central half span and then taper abruptly towards the tips.

The front spar is attached to the fuselage by a universal joint, on disconnecting the rear spar joint and the front spar joint, the Vee wing struts to the top of the fuselage, the whole wing can be rotated until the chord is vertical. The wing-bracing struts remain in place, a jury strut is fitted between them and the front spar to prevent their

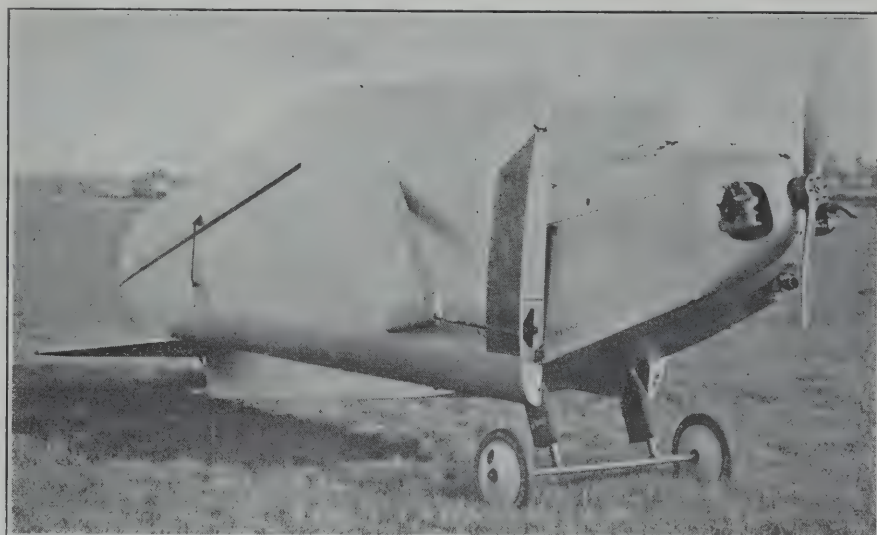


The Parnall Pixie IIIa Biplane.
(Note. Top plane shown white in plan silhouette.)

Chernub Engine.

Parnall Pixie III Monoplane

Folded for Transport.



orted, and the leading edge of the wing is rested on
ail plane.
e ribs used are built on three-ply webs, with spruce
and spruce diagonal and vertical members fixed to
ply webs. Both the tail plane and the fin are triangular
ces, framed in steel tube with very light steel ribs. The
tor is in one piece, approximately semi-elliptical in
and the rudder is of a D shape. The hinge axis of the
er is inclined back from the vertical exactly as in the
Pixie.

e undercarriage is somewhat similar to that of the single-
r Pixie. The axle is supported by two legs, one per
running from the top of the fuselage at the wing struts
gs and out through the bottom, where it is attached to
fittings carrying the front spar. The axle tube over-
s the legs and deflection of the axle is to some extent
for springing purposes. The legs however are telec
and fitted with steel springs and an oleo-damper.

e engine—a Cherub—is carried from the corners of the
roof bulkhead by four steel tubes converging to the
crankcase bolts. The lower pair of tubes are stiffened
ange tubes from the top corner fittings to a point as
e engine studs as can be reached without fouling the
e parts.

To convert the machine to a biplane a cabane of steel tube
is attached to fittings on the top of the fuselage, and a top
wing is supported on this cabane, and by two outwardly-
raking struts running from the bottom wing spars, up to
the top. This top wing is of smaller span than is the bottom,
has no ailerons, and is very much less thick than the lower
wing. It tapers in chord from centre to tips.

It is built up on two I section spars of spruce with three-
ply webs with ribs of generally similar construction to those
of the lower wing.

The monoplane version has already been flown by both
Sq. Ldr. Douglas and Flt. Lt. Haig and has brought off one
forced landing in a very small and rough field without in-
cident. This landing was caused by a defective plug. The
machine is said to have given entire satisfaction.

Apparently at a late date a third Parnall machine, No. 19,
has been entered. This is of the Pixie IIIa biplane type.
It is not by any means certain whether this is actually another
machine or merely an entry to allow for the flying of the
machine already entered as No. 18 with an alternative engine.
This last is the more probable hypothesis.

THE COMPETITION RULES.

A brief account of the nature of the contests at Lympne
and a summary of the rules will be found on page 304.

Specifications of the Competing Machines.

Entrant.	Entry No.	Pilot	Type and Name.	Engine.	Span.	Length	Folded Dimensions Span. Lgth. Hgt.	Wing Area Sq. Ft.	Weight Empty. lbs.	Weight Loaded lbs.	Wing loading lb./sq. ft.	Power loading lbs./h.p.	Est. Speed Range m.p.h.	Remarks.
Aeroplane Ltd.	1	Uwins	Monoplane "Brownie."	Cherub	36' 7"	26' 3"	7' 4" x 26' 3" x 9' 8"	204	500	870	4.26	29.0	36-70	Steel Fuselage
Aeroplane Ltd.	2	Barnwell F/Lt.	Monoplane "Brownie"	Cherub	34' 7"	26' 3"	7' 4" x 26' 3" x 9' 8"	192	500	870	4.52	29.0	36-70	Steel Fuselage and Wing Spars
Light Biplane Club	3	Comper	Biplane	Cherub	29' 8"(T) 22' 8"(B)	23' 6"	9' 6" x 23' 6" x 8' 0"	238	510	890	3.74	29.6	—	Side by-Side Seats
Beardmore Co. Ltd.	4	Piercey	Monoplane "Wee Bee"	Cherub	38' 0"	22' 2"	7' 8" x 22' 2" x 6' 0"	187	462	837	4.47	25.6	36-86	—
and Aircraft s	5	Winstanley	Biplane "Wood Pigeon"	Cherub or Anzani	22' 9"	19' 6"	7' 6" x 19' 6" x 7' 0"	155	439 or 464	779 or 804	5.03 or 5.18	26 or 24	32-72	Alternative Engines
and Aircraft s	6	Gaskell	Monoplane "Widgeon"	Cherub or Anzani	30' 8"	21' 0"	9' 9" x 22' 0" x 7' 0"	145	450 or 475	790 or 815	5.45 or 5.62	26.3 or 24	32-72	Alternative Engines
Navigation & Engineering Co.	7	James	Monoplane	Anzani	38' 0"	20' 8"	7' 5" x 20' 8" x 6' 0"	185	415	730	3.94	24.3	35-85	—
Bros. Ltd.	8	Parker	Monoplane	Cherub	34' 0"	23' 9"	—	168	483	850	5.05	28.3	37-73	All Metal Fuselage
Marine Avia- Works Ltd.	9	Biard	Biplane "Sparrow"	Blackburne Radial	33' 0"(T) 27' 0"(B)	21' 4"	9' 5" x 23' 8" x 8' 2"	256	478	860	3.26	28.6	—	—
e & Co. Ltd	10 } 11 }	Hinkler	Biplane "Avis"	Cherub Blackburne Radial	30' 0"	24' 0"	9' 0" x 24' 0" x 8' 11"	253	450	810	3.20	27.0	30-75	One machine entered with two different engines
arn Aero- & Motor Ltd.	12	Lotan	Biplane "Blue Bird"	Blackburne Radial	28' 0"	21' 8"	9' 8" x 21' 8" x 7' 11"	243	495	875	3.60	29.2	33-74	Side-by-Side Seats
aine ...	13	—	Monoplane	—	38' 0"	21' 9"	—	176	—	710	4.05	23.3	38-80	Scratched
Hawker Co. Ltd.	14	Raynham S/L	Biplane	A.B.C. Scorpion	28' 0"(T) 23' 0"(B)	20' 5"	8' 0" x 20' 6" x 6' 10"	165	—	—	—	—	—	—
Hawker Co. Ltd.	15	Longton	Biplane	Anzani	do.	do.	do.	do.	—	—	—	—	—	—
Ltd. ...	16	Payn S/L	Biplane "Vagabond"	Cherub or Blackburne	28' 0"	22' 0"	10' 0" x 22' 0" x 9' 5"	224	527	887	3.96	29.6	33-74	—
nnall & Co.	17	Douglas	Monoplane "Pixie III"	Cherub	32' 4"	21' 3"	8' 6" x 21' 8" x 6' 10"	140	—	—	—	—	—	—
nnall & Co.	18	F/Lt. Haig	Biplane "Pixie IIIa"	Cherub	25' 8"(T) 32' 4"(B)	21' 3"	—	243	—	—	—	—	—	Pixie III plus Top Wing

THE ROYAL AIR FORCE. The London Gazette.

Sept. 16.

GENERAL DUTIES BRANCH.—Fig. Off. A. P. Davidson (Lt., High. I.L.I.) is granted a permanent commn. in the rank stated (Sept. 17). The following officers are transferred to the Reserve:—CLASS A.—Flt. Lts. D. F. Lucking, L. R. L. Brown, D.F.C. (Sept. 12). Flg. Offs.—H. C. McDonald (Sept. 12). S. H. H. Swanton (Sept. 11). CLASS B.—Flt. Lt.—J. F. P. Bawn (Sept. 16). CLASS C.—Flt. Lt.—C. Fenn (Sept. 12).

The following Flg. Offs. resign their short service commns:—J. H. W. Axtell (Capt., Indian Army, retd.). H. G. Radcliffe (Lt., Indian Army, retd.) (Sept. 17).

Flg. Off. R. H. Wathes (Lt., Sherwood Foresters) relinquishes his tmp. commn. on return to Army duty (Sept. 6).

Flg. Off. (Hon. Flt. Lt.) G. C. L. Dalley (Lt., R.N.), relinquishes his tmp. commn. on return to Naval duty (Sept. 6).

MEDICAL BRANCH.—Flg. Off. E. D. Gray, M.A., M.B., is transferred to the Reserve Class D2 (Sept. 11).

RESERVE OF AIR FORCE OFFICERS.—The following offs. are confirmed in rank:—FLG. OFFS.—H. S. Bastord, E. M. Cleland, H. Marsden, G. W. Thorpe. PLT. OFFS.—J. C. Edwards, L. E. Falla, V. Foster, A. Y. Paton, F. H. Pidgeon, G. H. E. Roxburgh, G. W. Smart (Sept. 11).

Appointments.

Week ending Sept. 19.

Wing Commander P. K. Wise, C.M.G., D.S.O., to Station H.Q., Kenley, to command, 22/9.

Squadron Leader P. B. Hunter, to H.Q., Palestine Command, 28/8.

Flight Lieutenants W. Elliot, D.F.C., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 1/9. A. G. Bishop, A.F.C., and W. A. Duncan, to No. 1 Wing H.Q., India, 12/9.

Flying Officers A. E. Connolly, to No. 34 Sqdn., Iraq, 5/9. G. R. C. Spencer, to Aircraft Park, India, 12/9. S. P. George, to No. 5 Sqdn., India, 12/9. F. G. S. Mitchell, to No. 27 Sqdn., India, 12/9. C. B. R. Pelly, to No. 60 Sqdn., India, 12/9. T. B. Berridge, to No. 28 Sqdn., India, 12/9. J. Evason, to Royal Airship Works, Cardington, 1/10. I. K. Barnes, to No. 440 Flight, Malta, 5/9. G. E. Nicholls, to No. 402 Flight, Malta, 5/9.

Pilot Officers E. C. Dearth, to remain at No. 5 F.T.S., Sealand. H. C. E. C. P. Dalrymple, to No. 5 F.T.S., Sealand, 15/9. F. Boston, to No. 5 Sqdn., India, 12/9. A. S. Lewis, to No. 28 Sqdn., India, 12/9.

MEDICAL BRANCH.—Group Captain (Medical) H. V. Wells, C.B.E., to H.Q., Iraq Command, supernumerary, 5/9. Squadron Leader (Medical) A. E. Panter, B.A., to No. 6 Group H.Q., Kenley, 1/10. Flight Lieutenants (Medical) A. E. Barr-Sims, M.B., to H.Q., Iraq Command, 2/2. C. Y. Roberts, to R.A.F. Depot, on transfer to Home Estab., 23/8. J. G. Skeet, to No. 56 Sqdn., Epping Hill, 7/9. Flying Officers (Medical) W. J. Hutchinson, M.B., to No. 60 Sqdn., India, 18/8. R. S. MacLatchy, to R.A.F. Depot, Uxbridge, 22/9. C. J. MacQuillan, M.B., B.A., and F.P. Schofield, M.B., to Research Laboratory, and M.O.S. of I. Hampstead, on appointment to a s.s. com., 15/9.

STORES AND ACCOUNTANT BRANCH.—Flight Lieutenants (Accountant) E. N. E. Waldron, to Aircraft Depot, Egypt, 15/8. H. W. Capener, to Stores Depot, Iraq, 2/8. Flying Officers (Stores) E. V. Bashford, to Aden Flight, 3/9. R. Lamb, to No. 1 Wing H.Q., India, 12/9.

The Two-seater Light Aeroplane Competition.

The Light Aeroplane trials for a total of nearly £4,000 in prizes begins at Lympne on Saturday.

The first prize of £2,000 presented by the Air Council will be awarded to the entrant of the aeroplane which shall have obtained the greatest aggregate of marks in the schedule of tests, and the second prize of £1,000 will be awarded to the entrant of the aeroplane which is placed second.

A prize of £500 presented by the Duke of Sutherland will be awarded to the entrant of the aeroplane which shall have obtained the greatest aggregate of marks in the Taking Off and Pulling Up Competition and a second prize of £100 presented by Capt. C. B. Wilson, M.C., will be awarded to the entrant of the aeroplane occupying second place in these tests.

There is a prize of £150 presented by the Society of Motor Manufacturers and Traders and a prize of £150 presented by the British Cycle and Motor-Cycle Manufacturers' and Traders' Union which will be awarded to the entrant of the aeroplane which flies the largest number of completed

circuits of the course during the period of the Competition with a minimum of 400 miles.

Saturday and Sunday will be confined to the elimination tests. These will consist of (a) dismantling, housing, re-erecting, and (b) demonstration of dual control. The machine not presented fully erected to the officials at 10 a.m. on Saturday will be disqualified.

On Monday at 10 a.m. the schedule of tests will begin. This is divided into three parts:—(1) "Range of speed" for which there will be a high-speed and a low-speed test.

The high speed will be the average speed attained in flights, each of 75 miles, round a closed circuit and must be in excess of 60 m.p.h. The minimum speed will be the average of four runs over a short course close to the ground. This minimum must not exceed 45 m.p.h. The difference between high and low speed will be expressed as a percentage of the minimum speed and eight marks will be awarded for every 1 per cent. by which the speed range exceeds 33 per cent.

(2) "Taking off," in which the marks will be awarded for the machine which takes off from the ground over an obstacle 25 feet high. One mark will be awarded for every 100 yards by which the distance run is less than 450 yards. (3) "Pulling up," in which the machines will have to land over a barrier six feet high. One mark will be given for every 100 yards by which the distance from the centre of the barrier to the point where the machine comes to rest is less than 150 yards.

Competitions start daily at 10 a.m. and finish at 6 p.m. except on the last day when they will finish at 2.30 p.m.

On Wednesday afternoon there will be a 100-mile "formation race" for the Air League Challenge Cup in which ten squadrons of the R.A.F. will participate and on Saturday at 3 p.m. there will be a 100-mile race for the Grosvenor Cup.

For all these Competitions with the exception of that for the Air League Challenge Cup the engines will be limited to those whose piston displacement is less than 1,100 c.c.

London to Africa and Back.

During the past week-end Mr. Alan J. Cobham made a flight which must be regarded as one of the finest flights made since the dawn of Aviation started. If nothing to beat it is accomplished in the next few months this should win for him the Britain Trophy, of which he is the present holder, again this year.

He left Croydon on the D.H.50 which Mr. Barnard flew in the King's Cup Race, at 06.00 hrs. on Friday and flying in a westerly way of Dungeness, Boulogne, mouth of the Somme, Rouen, West of Tours, Cape Ferret, Biarritz, Pyrenees, Gaudan, and the Mountains, he reached Madrid at 15.10 hrs. without a stop. He flew 9 hours 10 minutes flying for the 920 miles. He filled up with petrol and oil in 30 minutes and restarted at 15.40 hrs. He flew direct to Tangier, passing East of Seville. He delivered his English newspapers in Tangier on the day of their issue, a feat never previously accomplished.

On Saturday, he left Tangier at 07.20 hrs. Owing to the weather conditions in Central Spain he returned via the East Coast of Spain and landed at Malaga at 08.50 hrs. He refilled with petrol and oil. He left again at 10.45 hrs. and going via Almeria, Alicante, Valencia, Barcelona, Gerona, Narbonne, he reached Toulouse at 18.00 hrs.

He restarted on Sunday morning at 06.30 hrs. and flew without a stop to Croydon which he reached at 12.50 hrs.

This flight to Africa was made on a De Havilland 50 with a 240 h.p. Siddeley Puma engine, the latter supplied by the Aircraft Disposal Company Ltd. Shell oil and petrol were used.

The object of the flight was to show that a modern aeroplane can fly for sustained periods without trouble. A complete 3,000 miles was accomplished in 28 hours with anything being done to engine or machine. An average speed of 107 m.p.h. was maintained.

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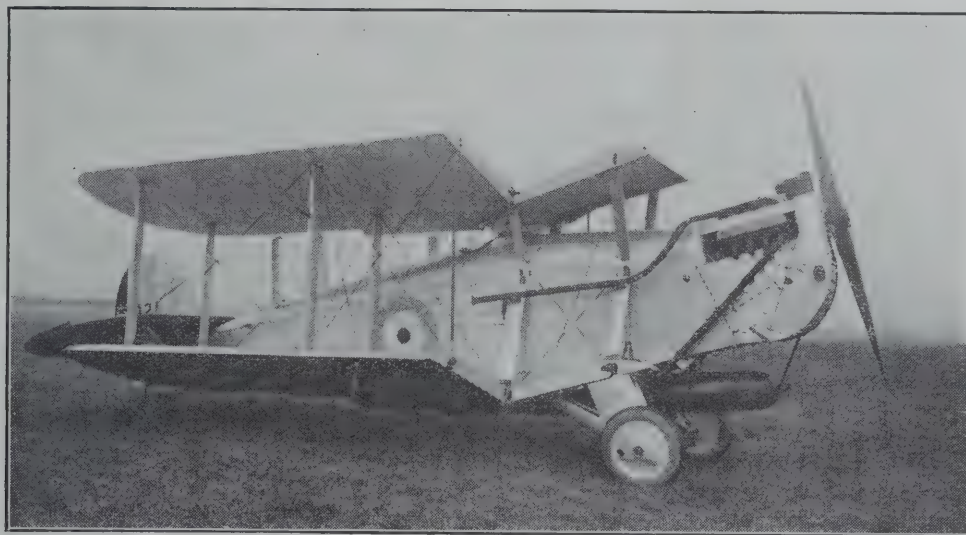
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The Editor Visits America.

Mr. C. G. Grey, Editor of this paper, left Southampton on Sept. 20 by the s.s. *Mauretania*, on a visit of some six or seven weeks' duration to the United States of America.

During this visit he will attend the Air Race meeting at Dayton, the chief event whereof is the race for the Pulitzer Trophy, and he was to attend the race for the Schneider Cup, which however will now be no race. In addition he may be expected to have opportunities of meeting many of the leading men of both the U.S. Army and Navy Air Services and of the Aircraft Industry, and of obtaining the most authoritative and up-to-date news of American Aviation and its present activities.

The Accident to the Schneider Cup Racer.

On Friday evening the Gloucestershire Aircraft Company's Napier-engined racer built primarily for the race for the Schneider Trophy met with a mishap which necessitates its withdrawal from the race. There had been some doubt as to whether Mr. Broad or Sq. Ldr. Rea was to make the preliminary trials of the machine. Mr. Rea weighs 13 st. 10 lbs. and Mr. Broad weighs little over 8 stone so it was decided that the latter should carry out the tests.

Mr. Broad took the machine off on Friday evening in a very short distance and there was a slight suggestion of porpoising though the machine got cleanly off the water. Mr. Broad made several circuits with the machine evidently under perfect control. It was however somewhat tail-heavy, but with the throttle nowhere near full open she was doing just under 200 m.p.h. Owing to the tail heaviness it was impossible to open her out fully and fly level, but there was little doubt that she would have done well over the required 220 m.p.h. when properly trimmed.

Everyone is agreed that Mr. Broad alighted perfectly. The weather conditions were ideal with just sufficient movement of the sea to break the force of the floats hitting the water. He came in at about 85 m.p.h. and made perfect contact, but just when everybody was breathing a sigh of relief the machine started to porpoise and the machine disappeared below the surface.

It was at first thought that Mr. Broad was either seriously hurt or killed, but happily however he was seen shortly afterwards climbing up to the tail of the machine which was the only part then above water and he was taken off by an Air Ministry launch. Official accounts state that something in the undercarriage broke but one learns from an observer who was some 300 yards nearer the scene of the accident than anyone else that he is perfectly sure that nothing broke. It was all over so quickly that it was difficult to see what did happen but there seems little doubt that the machine did start to porpoise. One was informed some time ago that the step was unusually far behind the C.G. of the machine which one understands is a cause of porpoising, so that it seems extremely likely that this is what happened.

Everyone was convinced that Mr. Broad was not to blame in any way for the accident as he handled the machine perfectly throughout the tests and the accident was purely and simply due to hard luck.

It is suggested that the proper procedure now is to get hold of four pilots weighing round about eight stone and let them for the next year practice continuously on fast racing seaplanes and in the meantime exhaustive tests must be made with seaplanes of this type so that next year we shall be able to send over to America a complete team and reserves who have had plenty of practice on the machines in which they are going to fly in the race.—G. D.

The Grosvenor Cup Race.

At the moment of going to press there have been twelve entries for the Grosvenor Cup Race. Most of these are entrants for the main competitions, and include a Bristol, Blackburn, Supermarine, Beardmore, Avro, two Westlands, Cranwell Light Aeroplane Club biplane, Vickers Vagabond and a Short.

Others who have entered for the Grosvenor Cup Race but not for the two-seater competitions include the Vickers Vigeo and the R.A.E. Club's Hurricane, both now with Cherubs, and a new-comer called the Bircham "Beetle" entered by Flt. Lt. Perry-Keene, Flg. Off. Deane and Flg. Off. Moss. It will be driven by an A.B.C. engine (variety unknown).

The closing date for entries has been advanced and is now Tuesday, Sept. 30.

THE GLOBE TROTTERS.

THE AMERICAN EXPEDITION.

On Sept. 17 the three Douglas World-Cruisers, pilot Lieuts. Smith, Nelson and Wade, flew from Chicago, Omaha, a distance of 440 miles, in 4 hrs. 44 mins.

On Sept. 19 they flew from Omaha to St. Joseph, Mo. 1 hr. 40 mins. After a lunch given in their honour, they timed their flight to Muskogee, Okla., reaching 3 hrs. 55 mins. later.

On Sept. 20 they flew from Muskogee to El Paso, Tex.

On Sept. 21 they flew from El Paso to Tucson, Arizona on the following day they flew to San Diego, Cal.

Although they actually started on their world-flight Santa Monica, Cal., about 120 miles from San Diego, a place of manufacture of their Douglas World-Cruisers, it been officially announced that the flight will finish at San Diego, roughly 1,000 miles from San Diego.

THE ARGENTINE EXPEDITION.

Major Zanni and Signor Beltrame, of the Argentine Air Service, who are attempting to fly round the World, Hong Kong on Sept. 22 and arrived at Haiphong on the day.

It will be remembered that Major Zanni left Amster on a Fokker biplane (Napier Lion engine) on July 26 after making a meteoric dash across Europe and part of was held up at Hanoi owing to his machine nosing over badly damaging itself on a soft aerodrome on Aug. 19. A spare machine, a Fokker-Napier seaplane in Tokio, was flown down to him, and as reported above he resumed his flight Sept. 22.

Maclaren's Return.

Sq. Ldr. A. S. C. Maclaren, Flg. Off. Plenderleith Sergeant Andrews arrived in London on Friday evening. Much has been said of the fact that no one was there to meet them. Actually very few people knew of his return neither the Royal Aero Club nor the interested firms given any information as to when he would arrive.

A banquet in his honour is being given on Thursday Vickers Ltd., D. Napier and Son, Ltd., and Shell-Mex and the Royal Aero Club are arranging for a banquet to be held as soon as the Lympe week is over.

COMMERCIAL AERONAUTICS

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 22; Tuesday, 22; Wednesday, 22; Thursday, 23; Friday, 24; Saturday, 22; Sunday, 11.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 90, passengers 400, freight 10 tons.

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Amsterdam—Rotterdam—London: Machines 12, passengers 43

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 6, passengers 6.

SURREY FLYING SERVICES.

Machines 1, passengers 0

DE HAVILLAND HIRE:

One machine (D.H.50) to Tangier and back on special flight.

Sabena: Machines 2 (D.H.9), passengers 4.

M. Boss: Machines 1 (D.H.6), passengers 1.

Total number of trips by British machines: 53, carrying 400

Foreign machines: 53, carrying 201 passengers.

Comparative Figures:

For week ending Sept. 21

Machines, 146; Passengers, 601; Crews, 177; Total personnel, 778

Corresponding week, 1923:

Machines, 109; Passengers 379; Crews, 172; Total personnel, 551

Corresponding week, 1922:

Machines, 98; Passengers, 337; Crews, 164; Total personnel, 501.

Corresponding week, 1921:

Machines, 66; Passengers, 154; Crews, 84; Total personnel, 238.

Corresponding week, 1920:

Machines, 100; Passengers, 261; Crews, 123; Total personnel, 384.

PERSONAL NOTICES.

MARRIAGES.

ALCHIN—WRENSTED.—On Sept. 5, at Holy Trinity Church, Folkestone, Gordon, elder son of the late A. H. Alchin and Alchin, to Sylvia, youngest daughter of Mr. and Mrs. T. H. Wrenst of 11, Inverness Terrace, W.2.

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THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by
C. G. Glegg

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ACROSS THE WORLD.



A LONG DISTANCE COMMERCIAL FLIGHT:—The Fokker F7 (Rolls-Royce Eagle IX) on which Mr. Van der Hoop is due to start to-day, Wednesday, for a flight from Amsterdam to Batavia. Both Mr. Van der Hoop and the F7 have for some time been flying on the Amsterdam-London route in the K.L.M. Service. This is the most ambitious flight yet undertaken on a commercial Air Liner.

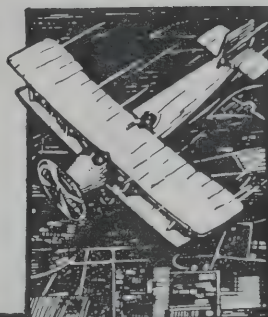


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Further examples of AVRO machines will be shown in this journal from time to time.

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ON THE RULES OF AIR WAR.—IV.

ARTICLE 21.—The use of aircraft for the purpose of disseminating propaganda shall not be treated as an illegitimate means of warfare. Members of the crews of such aircraft must not be deprived of their rights as prisoners of war on the charge that they have committed such an act.

The Commission remark that attempts were made during the War 1914-18 by one belligerent to impose heavy penalties on men who were forced to descend within his lines after dropping leaflets for propagandist purposes and therefore it is desirable to have a distinct rule on the question. Really one cannot recollect that any belligerent nation made it more unpleasant to descended aviators on this account than on any other.

For example, all the belligerent countries tried to make that bomb-dropping was illegal, just as they tried to make out that using tracer bullets was illegal, and nobody made a greater outcry about the bombing of munition areas than we did ourselves.

The Commission concludes that the use of aircraft for distributing propaganda is legalised by this article, but that attempts to murder or assassination will still be considered legitimate forms of propaganda. Presumably incitement to mutiny, or incitement to troops to mutiny—which inevitably leads to murder and assassination—may be considered legitimate propaganda.

That slight inconsistency is itself sufficiently amusing, but all more entertaining is the remark that legitimate propaganda are "not limited to dropping leaflets, as aircraft can disseminate propaganda by other means, such for instance as emitting trails of smoke in the form of words in the sky."

Major Jack Savage and the Sky-Writing Corporation stated will be so pleased about this, for it means that trained sky-writers will have a distinct military operation all to themselves in the next war. But unless the method of sky-writing is distinctly improved propaganda of this kind will be limited to very short words.

The word "revolution" would be rather long for a sky-writing aeroplane and so presumably propaganda in the sky will be limited to brief phrases such as "Chuck It" or "Stand Up." Or conversely if an army which owns sky-writing machines finds itself in a tight corner its smoke-propagandists will learn to write the word "kamerad" or equivalent in the enemy's language.

ARTICLE 22.—Aerial bombardment for the purpose of terrorising the civilian population, of destroying or damaging property not of military character, or of injuring non-combatants, is prohibited.

The Commission rightly remark, "The subject of bombardment by aircraft is one of the most difficult to deal with raising any code of rules for aerial warfare."

They add "The experiences of the recent war have left in the mind of the world at large a lively horror of the havoc which can be wrought by the indiscriminate launching of bombs and projectiles on the non-combatant populations of towns and cities. The conscience of mankind revolts against the form of making war in places outside the actual theatre of military operations, and the feeling is universal that limitations must be imposed."

Here we are up against one of the fundamental principles of war. On this point the Committee show that the legal mind and the military mind can never possibly be in agreement. To the strictly military mind there is no such thing as a place "outside the actual theatre of military operations." The limit of military operations is merely the distance which the forces or the projectiles of any belligerent can reach.

When artillery had a range of only a few hundred yards military operations were limited by the mobility and numbers of the troops engaged. For military purposes troops on the ground were devastated when necessary the areas through which they marched, or if it were more desirable they occupied the areas peacefully for their own convenience but certainly for the convenience of the non-combatant population. When the range of artillery increased it was always the effort

of an attacking army to bombard towns or cities which were occupied by their opponents, and such places were bombarded without regard to the feelings of the civil population. In fact as a rule bombardment was intended quite as much to terrify the civilian population into forcing the soldiery to surrender as it was intended to put the soldiery out of action.

The modern gun, such as that used by the Germans against Paris in 1918, has a range of fifty miles. Which is considerably greater than was the range of bombing aircraft at the outbreak of war in 1914. The range of modern aircraft merely means that the range of our projectiles has increased and that therefore the only places "outside the actual theatre of military operations" are those which cannot be reached by aircraft or are not worth reaching.

Furthermore, as one has remarked earlier in these notes, there is no such thing as a non-combatant, for the good and sufficient reason that everybody in a nation at war ought to be helping the war in some way or another. A woman working in a canteen is helping to wage war just as much as a woman working in a shell factory. And she in her turn is helping to wage war just as much as is the gunner who fires a shell.

Bombs which are dropped for the purpose of terrorising the civilian population prevent that civilian population from producing munitions of war and therefore one holds that such bombing is legitimate. Similarly private property must in some way or another be helping people who are concerned in waging the war and may therefore be bombed.

ARTICLE 23.—Aerial bombardment for the purpose of enforcing compliance with requisitions in kind or payment of contributions in money is prohibited.

The Commission explain that the Naval Bombardment Convention of 1907 allows bombardment for enforcing payment of requisitions for supplies necessary for the immediate use of the naval forces but not for enforcing the payment of money contributions. It seems to one that the difference between shelling a place in order to force the contribution of supplies and shelling it to get money out of it is hardly worth considering. And one cannot see why the Navy should be allowed to shell a place when the Air Force is not allowed to bomb it.

This article would seem in fact to have been introduced because of the false allegations that the Air Force in Iraq has been used to bomb Arab and Kurdish tribes who have refused to pay the taxes imposed upon them by the Iraqi Government at Baghdad and that the Commission had not the nerve to give this as the true reason.

In actual war the probability is that the Air Force which has for the time being the upper hand in the air will bomb just when and where and for what purpose it pleases.

ARTICLE 24.—1. Aerial bombardment is legitimate only when directed at a military objective, that is to say, an object of which the destruction or injury would constitute a distinct military advantage to the belligerent.

2. Such bombardment is legitimate only when directed exclusively at the following objectives: military forces; military works; military establishments or depots; factories constituting important and well-known centres engaged in the manufacture of arms, ammunition or distinctively military supplies; lines of communication or transportation used for military purposes.

3. The bombardment of cities, towns, villages, dwellings, or buildings not in the immediate neighbourhood of the operations of land forces is prohibited. In cases where the objectives specified in paragraph 2. are so situated that they cannot be bombed without the indiscriminate bombardment of the civilian population, the aircraft must abstain from bombardment.

4. In the immediate neighbourhood of the operations of land forces, the bombardment of cities, towns, villages, dwellings or buildings is legitimate provided that there exists a reasonable presumption that the military concentration is sufficiently important to justify such bombardment,

having regard to the danger thus caused to the civilian population.

5. A belligerent State is liable to pay compensation for injuries to person or to property caused by the violation by any of its officers or forces of the provisions of this article.

It would seem that this article followed to its logical conclusion automatically cancels article 22. If it be legal to bomb munition centres and railway junctions as specified in paragraph 2 then apparently it is legal to bomb practically anything. One can hardly believe that the proviso in paragraph 3 will have much influence.

A munition centre necessarily includes the dwellings of the munition workers in the vicinity and in a munition area

practically the whole of the civilian population is either directly engaged in producing munitions or at any rate in the case of the shop-keepers, is engaged in ministering to the munition workers. And who is to say in such a case whether "the aircraft must abstain from bombardment"?

The last paragraph, number 5, can hardly be taken seriously, for the recent war has shown us that when a nation has been defeated even the victors cannot enforce payment of compensation. And so far one has not heard of any payment by England and France to Germany in compensation for injuries done to private property in many by our bombing machines. Nor has one even heard of any sum being allocated to the credit side of German account for this reason.—C. G. G.

STALLING AND ACCIDENTS.

The following letter has been received from Capt. G. de Havilland in reference to certain statements made in the recent articles on Accidents in the R.A.F. :—

Sir,—In your article on Accidents you refer to some remarks made by me. Will you kindly allow me space to continue a very important subject? While agreeing with the principles set forth in your article of always striving to produce safer aeroplanes, I cannot agree with some of the definite statements made.

You say "given an aeroplane which instead of nose-diving . . . it is impossible for the most careless pilot to produce a nose-dive by stalling." Agreed, but you cannot be given such an aeroplane, and both the machines mentioned must and will thoroughly nose-dive when stalled in a "careless manner." I can vouch that the D.H.50 which is similarly classed as a non-diving machine, later in the article, will dive thoroughly and properly when stalled. I cannot agree that it is possible, with present knowledge, to produce a machine "which will never become dangerous when it stalls." That machine, to my mind, is not in sight, and the time has not come and probably never will come when a careless pilot will be able to stall with impunity.

With regard to your remarks about the meaning of "stalling," although there are some quite different opinions on the matter it is not difficult to find the facts. How is a stalled condition (in the generally accepted sense) brought about? Assume a machine with 40 m.p.h. minimum flying speed gliding on a straight path: if the control lever is moved steadily back the speed will be reduced to the minimum (40 m.p.h.) and the temporary decrease of speed below 40 m.p.h. is entirely governed by the manner in which the control lever is moved, the two extremes being to throw the machine vertically with the nose up when the speed will be nil, or to bring it to the minimum flying speed only.

Any attitude between these points will be followed by a dive of an intensity and amount relative to the loss of speed. So that when any machine is seen to gently dip and go forward again it means that only a mile or so an hour has been temporarily lost in stalling. But when a pilot is making a forced landing and tries to jump a hedge or trees it is indeed easy to lose enough speed to cause a dive—not necessarily steep or long—but sufficient to be fatal, and this assuming a straight glide.

If, as generally happens, a pilot has to turn to gain his landing ground and is at approximately minimum speed, then one wing will drop and the machine will tend to spin.

It is generally known that experiments have been made with large rudders and a different disposition of weights with a view to improving control at stalling speed and preventing spinning, but any machine of this type if floated down beyond stalling angle (not below stalling speed, which is impossible), becomes a very inefficient parachute and will hit the ground with such force as almost certainly to kill the occupants, as it cannot "level up" without diving first. It may be preferable to hit the ground right way up even if it is going to be fatal, but it is poor consolation at the best.

We are left with the fact that prevention is better than cure and that while efforts should be made to improve control at low speeds, it will always be necessary for a pilot to use care and judgment as in other forms of transport, and he can best do this by being trained to make use of the speed indicator. That the instrument may fail at the precise moment when a forced landing is being made is somewhat straining the point and it would always be possible to have a duplicate instrument. If in the habit of using it, it is easy to check one's speed by a glance at the indicator every few moments when making a "tight" landing.

When a pupil has learnt to use the air-speed indicator he has automatically learnt to fly by feel as far as it is possible to do so, but how can a pilot in a strange machine or a pupil flying low with a following wind fly safely entirely by feel? Results seem to indicate that the method is not satisfactory.

(Sgd.) G. DE HAVILLAND.

ON ELIMINATING LIGHT AEROPLANE

The general consensus of opinion at Lympe at the end of the eliminating trials was that the officials of the meet had not really been trying—otherwise, with the very comprehensive book of rules to aid them, they ought to have succeeded in washing out more than seven of the 15 machines presented to them.

The elimination trials were introduced, or so one gathers, to penalise competitors who were not ready in good time for the meeting and to wash out futile competitors who had no earthly chance of fulfilling the conditions required of them. In practice the elimination has only served to put off the running a number of extremely promising and interesting machines which could not get their engines in function on the appointed two days. And it cannot be said that this trouble with engines was in the least the fault of the competitors.

When the rules for the competition were first issued it must be remembered that the Air Ministry announced that although a certificate of airworthiness for the engine used would be insisted upon any concession which they might make would be entirely at their own discretion, and that they would insist upon a satisfactory *prima facie* case being made in favour of the engine's reliability.

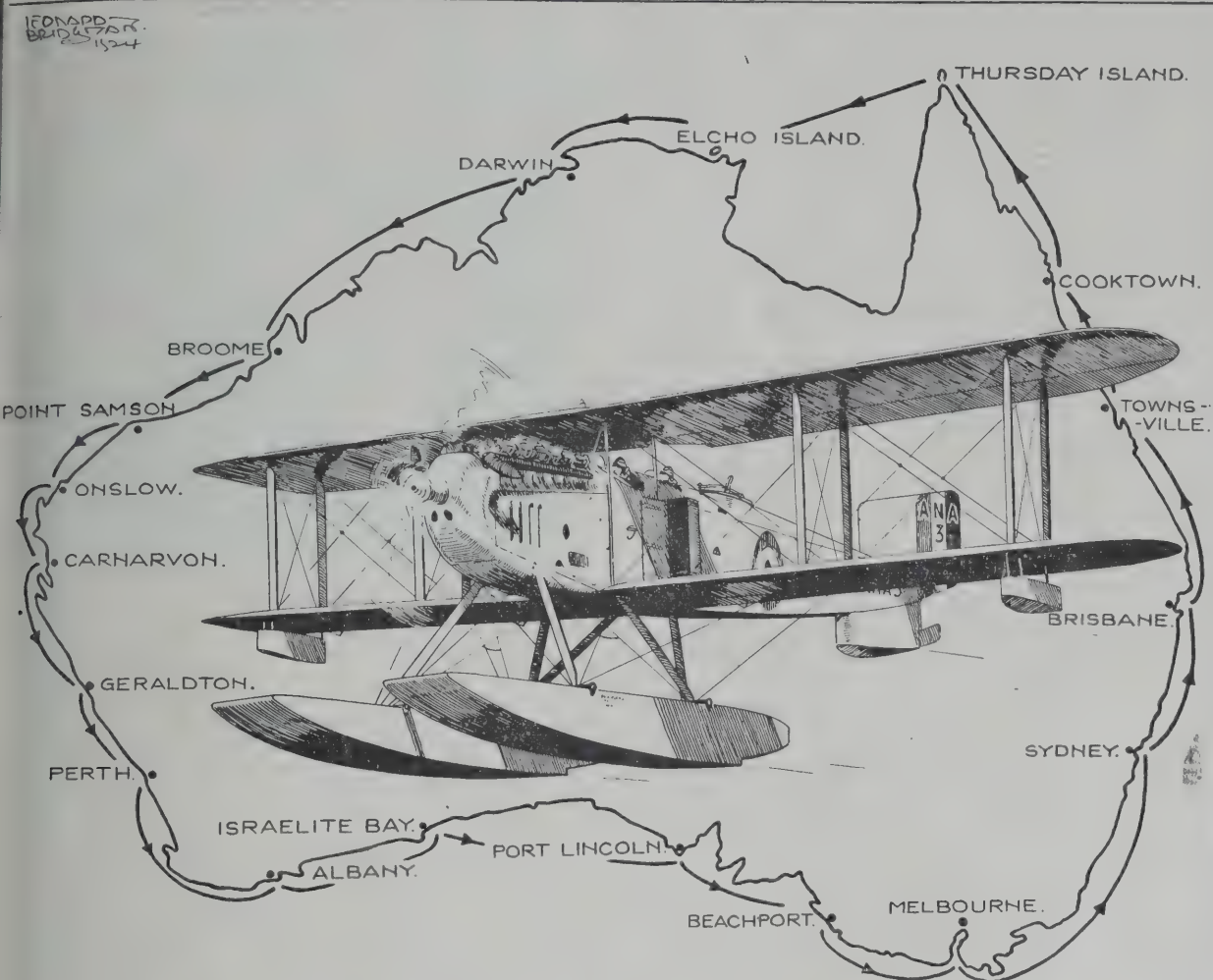
Now it so happened that the Cherub of the required cylinder capacity already had an airworthiness certificate, though at a rating appreciably below that which was needed to satisfy the competition rules. Therefore while the makers of the Cherub had only to develop a little further the output of an already tried and approved type, every other possible engine had to be regarded as being—for aeroplane purposes—only in the design stage. And naturally practically every designer determined to use a Cherub, and practically every engine maker other than the Bristol Co. decided that the competition was not worth troubling about.

Now no reflection whatever upon the Bristol firm or particularly none on Mr. Fedden is involved in saying that in fact the Cherub has let quite a lot of designers down very heavily. The Cherub is as a matter of fact an extraordinarily good little engine—certainly the best of its class yet seen in the air. But the Bristol firm having been committed to satisfying the Air Ministry and submitting to all the A.I. red tapery found it impossible to deliver their engine to the aircraft designers in time to give them a fair chance of turning up the engine in the machine itself and discovering and remedying troubles of the type which always arise with installation and so forth of a new engine in a new machine.

When it became obvious that there would be difficulty in procuring the requisite number of Cherubs in time for the competition the Air Ministry dropped their requirements to engines and gave designers the chance of using any engine they could get. Thereupon the Blackburne, A.B.C. and Anzani firms offered extremely promising engines of the required size and several firms—scared of getting no engine at all—adopted one or other of these. But with the exception perhaps of the A.B.C. Scorpion not one of these engines at the opening of the contest had any claim whatever to be regarded as more than an untried experimental type, and that they had on the whole given very considerable trouble is neither surprising nor in the least discreditable to their designers.

With the single exception of the Short Satellite—which withdrew because it is admittedly a good deal heavier than was hoped and which really is not able to lift the competitive load, and the Westland monoplane, which crashed because its pilot had no idea of the wind conditions that he was likely to meet on the eliminating course, every eliminating machine has been put out of the contest by troubles with its engine for which there would have been no excuse had the Air Ministry had enough sense to leave engines alone.

And the moral of all this is that the Aero Club and the S.B.A.C.—if they have any intention of maintaining their position as self-respecting bodies—must refuse to have anything to do with alleged sporting events in which the Air Ministry pulls the strings.



ROUND AUSTRALIA

8,568 miles in 90 hours

ON A

THREE YEARS' OLD FAIREY SEAPLANE 360 h.p. Rolls-Royce Engine.

Flight-Lieut. IVOR EWING McINTYRE, O.B.E., A.F.C. (R.A.A.F.), pilot of the seaplane, said:—

"The performance of the machine was absolutely excellent throughout. I have had a good deal of experience of seaplanes but this has far surpassed anything that I had expected. You know the old bogies about sun-warping of wings, yet, although the Fairey encountered heavy rains and was then very severely tested by going suddenly into the tropics, the wood spars and general rigging stood up to it perfectly. During the whole flight we never touched a wire on the rigging. Fabric, controls and everything else connected with the machine were perfect."

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THE LYPNE MEETING.

ELIMINATION.

Saturday, Sept. 27.—Officially proceedings in the competition were to open this morning at 10 a.m. with the presentation to the judges of all competing machines in a fully erected condition. There were in fact present at that time 14 machines out of the 19 original entries. The four absentees were accounted for by the scratching of No. 13 (F. E. Raine) and No. 12 (Blackburne Aeroplane and Motor Co.), neither of which were ready, by the decision of A. V. Roe and Co., not to attempt to put their single Avis biplane through the contest with two different engines, but to run it with a geared-down Cherub, and by a difficulty which arose in connection with the proposal to run one of two Parnall Pixies which were actually ready, firstly as monoplane, and secondly as a biplane.

The officials of the meeting represented to Mr. Bolas that according to the rules if he wished to run it both as monoplane and biplane it was necessary that he present it fully erected in each form at one and the same moment, and not as a biplane one minute and a monoplane five minutes later. After consulting with his pilots, Mr. Bolas decided to scratch the monoplane and run both machines as biplanes—which he did. No. 17 therefore, although it actually takes part in the contest as an integral portion of No. 18, disappears from the list of participants. This ruling is regrettable, and its results are somewhat ridiculous—particularly as a discussion of the point delayed the official acceptance of the presented machines till after 10.30—say five or six times as long as would have been necessary to convert from biplane to monoplane—but after all rules are rules, and the best laid of them can never be relied upon to meet all contingencies in a rational manner.

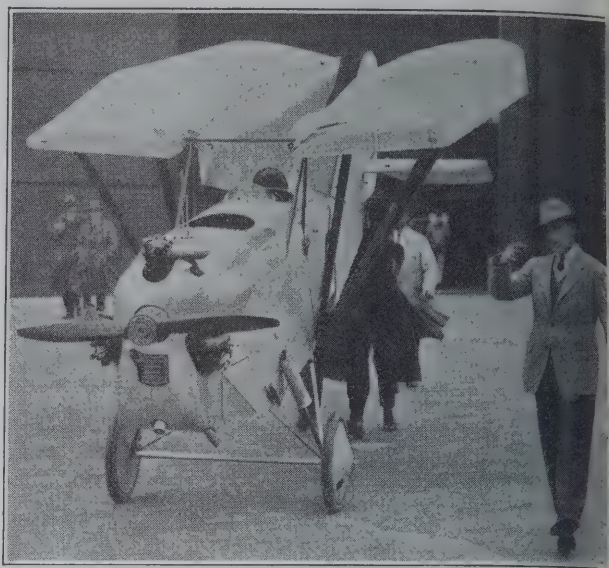
Another subject of argument arose immediately upon presentation. The Vickers Vagabond arrived at Lypne some few hours before the official opening, having been delayed waiting for an engine. The engine mounting was found to be deficient in rigidity to a very serious extent, and permission was sought to replace it after presentation. It was ruled that they might repair but not replace.

At about 11.30 the transport test began. This consisted of folding or otherwise packing the machine into a compact form wheeling it out of one shed across the tarmac and through a sort of alley-way built up from what appeared to be a huge block of office pigeon-holes which was supposed to represent a shed ten feet wide. The machine had then to be taken back and re-erected ready for flying. This performance had to be completed within two hours two men alone being allowed to touch the machine. The first away in this test was the Westland Wood-Pigeon biplane, which completed the manoeuvre in about five minutes, followed quickly by Bristol Brownie No. 1.

With three exceptions all the machines present carried out this test in a lapsed time of certainly not more than 10 minutes. The exceptions were the Cranwell Club biplane No. 3, which is fitted only with rapidly detachable joints throughout and therefore took somewhat longer than the average.

On the second Hawker Cygnet it was found that owing to insufficient clearing away of the roots of the centre section spar, a nut on the wing spars fouled when the machine was folded and the wings therefore would not close to the specified 10-ft. gauge. This was fairly speedily rectified.

The Vickers Vagabond however had serious trouble. Apparently it was designed to fold to exactly 10 ft. over all. Also the pitot tube had been mounted in such a position that it projected beyond this width and it had to be unfastened and bent out of place. Even so very great difficulty was found in getting it through the alley-way, and it was only by a very careful process of adjusting the alley-way to a true 10-ft. rect-



TRANSPORTATION.—The Westland Widgeon monoplane folded for the first test, Mr. Mansell marshalling.

angular section that a clearance, estimated at 1/1,000 inch was obtained.

From early morn till late in the afternoon, a strong gale N. to N.E. wind of at least 20 m.p.h. on the ground blew, and although transport tests were all completed by about 2.0 p.m., nobody seemed particularly anxious to take the air.

However, at a little after three o'clock Biard, on the Supermarine Sparrow, and Winstanley, on the Westland monoplane, the Widgeon, took off almost simultaneously to fly the first lap in the demonstration of dual control. This consists of flying one lap—12½ miles—with full load and the pilot in one seat, landing, changing the pilot into the other seat, and flying one more lap. Full competition load with ballast place of the passenger was to be carried. Biard took off the Supermarine after a very short run, and climbed well, but just as he cleared the areodrome his engine spluttered and he descended in a large field some quarter of a mile away. No damage occurred and later the machine flew back.

Winstanley—on the Westland monoplane—took off considerably less briskly than did the Supermarine, but got away and gained height steadily on the way to the first turning point. As he turned however he ran into the down-current over the ridge along which the second leg of the course is laid and was blown down onto rough ground. The Widgeon was somewhat severely damaged—the undercarriage and the central part of the fuselage were wrecked, but the pilot was unhurt. It may be remembered that last year, with a more or less southerly wind, a good deal of petrol economising was carried on along the ridge by the aid of up-currents—this year—or this day at least—it seems necessary to climb three or four hundred feet per minute in order to fly level along this part of the course.

A little later—the wind having dropped slightly and steadied up very considerably—Haig on No. 18 Parnall Pixie took off and successfully negotiated the course. The Pixie as a biplane simply leaps off the ground and has a very surprising initial climb. Haig took due advantage of this and arrived at the ridge well up above the top of the hill. Even so he lost height appreciably on the turn, but proceeded to regain



The Westland Widgeon unfolded with

Capt. Winstanley, the pilot, alongside.

The deletion of this machine on

Saturday was a piece of very bad luck

for all concerned.



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THERE is no more rigid or thorough test for an engine than the Type Tests carried out under supervision of the Aeronautical Inspection Department of the British Air Ministry. Three times has the Armstrong Siddeley

"JAGUAR" Air Cooled Radial Engine

been submitted to this test and come out triumphant:—

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On each occasion the engine has been run at the rated h.p. and for the number of hours stated—together with high speed and high power tests.

It will be noted that the duration of the latest test was 100 hours. The "Jaguar" Air Cooled Radial is

the first and only engine
to fulfil this test.

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The King's Cup won with Armstrong Siddeley "PUMA" Engine. Fastest time with Armstrong Siddeley "JAGUAR."

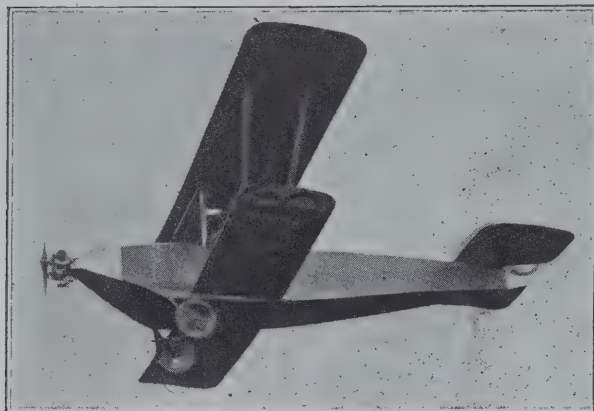
Farthest North. Oxford University Expedition North Eastland. "LYNX" Engine beat Farthest North flying record—80.15.

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Left, the Cranwell biplane with Lt. Comper up, and right, Mr. Uwins on the Steel-winged Bristol.



on the straight. He arrived back however with dropping oil pressure and did not make his second circuit for an hour or two.

Uwins on No. 1 Bristol Brownie made one, and Piercey on the Beardmore Wee Bee made two circuits in good style and without incident, Raynham on the A.B.C.-engined Hawker made his first circuit, Parker on the Short Satellite, which is perhaps the prettiest machine of the lot, and Flt. Lt. Comper on the Cranwell machine, took off and flew round the aerodrome, without however tempting the down-currents.

Later, Flt. Lt. Comper flew his first circuit.

Mr. Campbell took up No. 2 Bristol, but turning round, the sheds his port wing was seen suddenly to develop a most terrifying flutter and everyone who saw it expected to see it break. However, as the machine straightened up the fluttering stopped, but Mr. Campbell very wisely took the opportunity to land. On stripping the wing no defect of any kind could be found, and it seems fairly certain that the trouble was caused by a periodic oscillation of one aileron, of a type which has been experienced on more than one cantilever monoplane. The ailerons on this machine are held down by rubber shock-absorbers and pulled up by the control wires. There is a very great probability—almost a certainty—that the trouble could be cured by stiffening up the holding-down rubber, but unfortunately there is no time to investigate this problem and cure it during the meeting, so that one Brownie at least may be regarded as eliminated.

Towards 5.30 Mr. Gaskell started off on his first lap on the Westland biplane. It was now getting darkish, and by six—when officially proceedings cease—there was no sign of him. It was at first rumoured that he also had crashed, but although he too was blown down quite close to the scene of Winstanley's accident, no damage was done.

Thus the first day of elimination has definitely washed out two machines, while only two have passed the preliminary tests.

Sunday, Sept. 28.—The promise of yesterday's rising barometer has been fulfilled. The day broke calm and clear, with what wind there was blowing from the southward and therefore likely to help competitors to get along the ridge, instead of blowing them down as yesterday. Flt. Lt. Comper accordingly got away very quickly after to a.m. and made his second lap on the dual control demonstration. He reported on returning that he was able to fly the whole course throttled to 2,600 r.p.m., instead of as yesterday having to fight to keep his height at 3,200 r.p.m. The Cranwell Club naturally were very pleased at having got through the eliminating trials without trouble, and practically everybody shared in their pleasure, for it is generally recognised that it has required an unusual amount of pluck and perseverance on their part to produce this machine. And although the machine is a little on the slow side it certainly flies and handles extremely well.

Mr. Biard on the Supermarine Sparrow then took off and made one circuit, his engine having been overhauled during the night in an effort to reduce the amount of oil consumed and so prevent trouble with fouled plugs. The effort was successful in so far as its primary object was concerned, but on his attempting to make his second "dual control circuit," the big end failed and one end of a connecting-rod came out through the crankcase. A spare engine was available and a start was at once made to instal it in the hope of getting through the tests before 6 p.m., when elimination trials have to be completed.

Mr. Parker took out the Short Satellite to attempt his first circuit. He found however that the machine with full load had an inadequate climb to face the course even under the

excellent weather conditions, and landed after a couple of circuits of the aerodrome.

Sq. Ldr. Longton, having on Saturday done a little preliminary running in of his Anzani engine, took the second Hawker up with full load and flew his first lap straight away, this being the first time he had flown the machine. He seemed thoroughly pleased with it, and should do well in the competitions if engine troubles do not interfere.

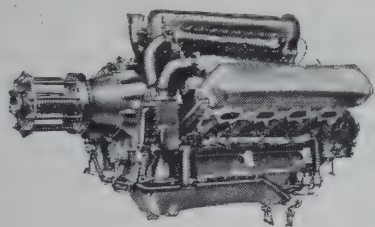
Mr. James then tried to take the A.N.E.C. round the course. The Anzani engine however was not feeling like it and refused to take him off the ground. It was then found that the cylinder had absolutely no compression, and suspicion fell upon the piston therein. The cylinder was removed and disclosed a broken valve.

The second—or should it be the third—Pixie with the Blackburne engine was next into the air. Sq. Ldr. Sholto Douglas got away well, and was within half a mile of the aerodrome on his way back from his first lap when an exhaust valve jammed. He just failed to make the aerodrome. Longton shortly after made his second flight, thus becoming the fourth machine to fail to be eliminated. The general opinion seems to be that the rule-makers have not done all that was expected of them in allowing as many as four machines to qualify early as lunch time on the second day of elimination.

The Westland Wood Pigeon after a vain attempt to fly back from the field into which it was blown last night, reached Lymington by road soon after lunch time, and took to the air again round about 3 p.m. The machine seems decidedly fit



Sq. Ldr. Douglas on his Parnall Pixie with the Blackburne radial engine.



NAPIER Aero Engines

"The Joy of the Squadron"

Boyd Cable, the well-known writer, in an article in the *Daily Chronicle* of 12th Aug. last, whilst acting as Special Correspondent in the Spanish Zone, wrote as follows:—

"One Bristol had a 450 h.p. British Napier 'Lion,' which was the joy of the Squadron. 'Once you're off the ground with it,' said the C.O., 'you just forget there is an engine. You fly like a bird, without thinking about it.'"

The NAPIER aero engine instils confidence.
Pilots trust it.

Major Zanni, the Argentine airman who is flying round the World, has reached HANOI from AMSTERDAM—7,500 miles—in 17 flying days, with one Napier engine.

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Mr. Gaskell on the Westland Wood Pigeon.

for a biplane and, provided similar conditions to those of yesterday do not recur, it should do well in the trials proper.

As a result of yesterday's trouble with No. 2 Bristol Brownie some question as to the advisability of allowing No. 1 to continue the competition arose. The consensus of opinion was that as No. 1 had steel wings instead of the wooden ones of No. 2 the trouble was very unlikely to arise at all, and that in any case the trouble would have been prevented by tightening up the aileron Sandows on No. 2. Both Capt. Barnwell and Mr. Uwins were anxious to demonstrate that the machine was safe and Capt. Barnwell finally took her up and did a series of steeply-banked turns in an effort to provoke wing flutter, without success. The officials thereupon decided to allow it to continue the tests, and Mr. Uwins finished his second lap with a set of very clean sharp figures of 8 to show his confidence in the machine.

Shortly after this Sq. Ldr. Douglas, having fitted a new valve, etc., took off and flew back to the aerodrome. Just as he was about to turn down-wind his engine failed a second time, and rather than risk a tight landing he disappeared over the trees towards the sea. It was generally supposed that he had taken to Romney Marsh for a landing ground rather than risk a stall. Haig on the other Pixie thereupon flew over to prospect for him but found him safely in a field just across the road from which he flew back.

Both Vickers' and Avro's teams spent most of the day wrestling with their engines. Both have the geared Cherub, which seems to be somewhat harsher in running than the ungeared type. Owing to this and possibly to some defects of carburation both engines gave rise to violent vibration which was thought to be too serious to be safe.

By about 3.30 Mr. James had his Anzani running again and took off for a short flight, and Mr. Raynham, who had been delayed by a leak in his petrol tank, was filling up and testing the repair.

Having successfully repaired his tank Raynham took the A.B.C.-engined Hawker over the course and qualified for the contest, thus giving to the Hawker firm the distinction of being the first with two non-eliminated entries.

The Supermarine crew succeeded in installing the new Blackburne engine by a little after 5 o'clock, and they then pushed out the Sparrow and ran up the engine. One cylinder however proceeded to grow abnormally hot thanks to a tight piston, and after removal of the cylinders and some fine work with a file and sand-paper on the offending member, the engine was persuaded to run, but too late to complete its second circuit by closing time.

Longton on the Hawker over the Supermarine, which is trying to persuade its engine to run properly.

Both the Avro and the Vickers worked their hardest up to the close of the official day to overcome their vibration troubles without success. Hinkler got as far as attempting to throttle down to a speed at which trouble was relatively unimportant, succeeded in showing that the machine could fly at a ridiculously low speed which looked like about 10 m.p.h. But he had no chance of getting into the course and so was automatically eliminated. The Vickers engine was never persuaded to run sufficiently smoothly to encourage Payn to attempt to fly the Vagabond—which accordingly suffered a similar fate.

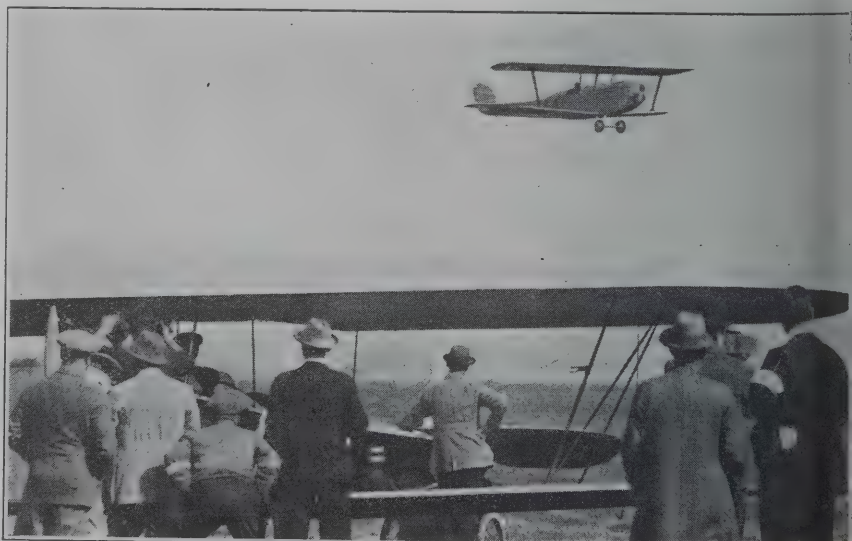
Mr. James made one or two efforts to take the A.N.E.C. off with a full load—but failed to get the Anzani running sufficiently well to do more than just leave the ground, and withdrew the shed with about half an hour to the official day to run. Thus the eliminating trials have resulted in eight machines—one Bristol, the Cranwell,

Beardmore, the Westland biplane, two Hawkers and Parnalls—having qualified for the competitions, and in eight having been either eliminated or withdrawn.

Monday, Sept. 29.—Blue sky and sunshine with a 25 to 30 mile an hour breeze off the sea was the state of the weather at 8 o'clock. The weather merchants promised rain, hurricanes and other diversions during the day and no good weather for a week. Naturally everyone felt happy, but not rightly. The wind was far too strong for speed or land trials, and most people had little jobs to do to their engines. By lunch time the wind was definitely falling, by three it was not more than about 15-18 m.p.h. on the ground. Piercey came out with the Wee Bee and began to lap the course of 12½ miles in something under 11 minutes to the lap, his engine evidently taking it quite easily. He made five circuits, landed and filled up, and departed for another five circuits. The Wee Bee is undoubtedly as remarkable a machine as was last year's A.N.E.C. It gets off and climbs with real vim, and it averaged 70.1 m.p.h. over the 100 (125 miles) with 400 r.p.m. in hand and at 35 miles to a gallon of petrol. It can undoubtedly put up a good deal of higher speed, but in the meantime it has proved that a 1,100 c.c. two-seater can be a flying machine.

Shortly after the Wee Bee's start Longton took to the air on the Anzani Hawker. The first Anzani had broken a crankshaft on Friday and the new engine, put in on Saturday morning, had never even been run in. Longton's qualifying flights on Sunday and to-day's efforts were therefore somewhat circumspect proceedings, half-throttle not being exceeded except for the take-off. However the machine made five or then three or four laps at an average of round about 35 m.p.h. This of course does not help him to qualify for the 60 m.p.h. top speed but it gives him two out of the required ten hours of flying. Incidentally Longton showed his judgment in spinning out his last lap so that he crossed the finishing line at about 30 seconds to six. As only laps are timed, and only laps finished before six count, he made all the time that was possible.

The Cranwell biplane then took off carrying a real passenger.



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Some extracts concerning the recent flight of 8,500 miles round Australia from "The Aeroplane" of May 22nd, 1924, entitled

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"A performance which may fairly be claimed as the finest flight in the history of aviation."

"The durability and reliability shown by the Fairey seaplane and the Rolls-Royce engine have established once more the reputation of English aircraft design and material in the esteem of the aeronautical authorities of foreign nations"

RELIABILITY

Some Successful Flights made by Rolls-Royce Engines:

England to Australia	11,500 miles
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Across the Atlantic	1,890 miles
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These flights were accomplished without any change of engines en route

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Last year's smile. Mr. Longton
the Anzani Hawker.

A Cri de Coeur.

Blackburne, keep your revs up.
Keep your revs up,
Keep your revs up.
Blackburne, keep your revs up.
Why don't you make it rise?
You must not fade away
Petrol tap's turned on to-day!
So Blackburne, keep your revs up.
Hold my plane up in the skies.

Lympne Impressions.

Up to now the general impression of the Lympne Meeting has been that the machines are somewhat disappointing. People have been expecting so very much from them in view of the astonishing performances last year with the light machines. Of course it must be remembered that the engines of last year's machines were perfectly ordinary motor-car engines and that at the time of the Competition they had fallen into the clutches of the Air Ministry experts.

As a matter of fact one is under the impression that this year is not so much with the engines themselves. Perhaps we have not yet had time to gain sufficient experience with them and the remarkable improvement in the engines as the Competition proceeds is rather proof of this.

There is no doubt that the Cherub is a very good and satisfactory power unit. A certain amount of trouble has been found with the geared engine chiefly on account of the fact that there has not been sufficient time to test it but certainly the ungeared Cherub in Mr. Piercey's machine, for one, has been running very well. One pilot put the situation in a nutshell as follows:—"The horses are there all right, but they are very wild. When they are tamed they are splendid." There is very little doubt that by the end of the meeting the Cherub will undoubtedly prove itself to be thoroughly good and it is already justifying Mr. and Mrs. Fedden's hopes.

The number of forced landings that occurred on the day gave rise to the suggestion that the race for the Gordon Cup which takes place next Saturday should be run under Gordon Bennett Balloon Race rules. That is to say the machine which gets farthest from its starting point wins.

Both the Parnall Pixies have been flying quite well. They are curious little machines to see in the air owing to the fact that the extra top plane is smaller than the lower plane. Various remarks have been heard suggesting that this looks like a collision in the air and other people call it a flying house-boat. It is suggested that chairs should be placed along the lower plane and the top plane used as an awning.

Mr. James made several efforts to get the A.N.E.C. off the ground on Sunday, but for some reason or the other with a full load he could not get the tail off the ground. He anchored a bunch of balloons onto his tail to see if there would be any improvement but there was none. On Monday night he took the machine for a long high flight over Hythe without out of course carrying a load, and the machine performed very well.

Sq. Ldr. Sholto Douglas has now got his Blackburne engine running very strongly. To begin with he was getting quite used to forced landings and put the machine down into aerodrome got it out again from all sorts of curious places. He handles the machine extremely well and there is little doubt that much more will be seen of him in the Competition flying.

Mr. Shaw, of Shell-Mex Limited, has been receiving very flattering proof of the excellence of Shell spirit. Up to now four complete tins have been stolen from various places of the aerodrome.

Already a purchaser has been after one machine. As however he wished to buy the fuselage only for £10 the offer was turned down with scorn. It was understood that he wished to use it for racing on Brooklands track.—G. D.

and not ballast only. This was the first flight made with two actually up. The wind was blowing down the hill, and the slope is quite steep enough to make quite a difference to the acceleration of a machine of this type, and of course there is a distinct downwash when the machine does get off. The Cranwell found some trouble in getting height to turn, but having received a hint or two concerning the habits of winds in this region, it went straight out across the road, looking distinctly unhappy but really with plenty of speed and control till it found the famous up-current over the cliff at the edge of Romney Marsh. Here it soared up to 400 feet or so and went off to lap. It put in three or four laps at round about 32 m.p.h. and landed a little before six, having also helped towards its ten hours.

Mr. Uwins then made an effort, took off, was starting to turn, when his engine spluttered and he straightened up and just pulled up before meeting the fence. Apparently the heater muffs fitted to the induction pipes had been lent to the owner of another Cherub-engined machine which was shorter of power than the Brownie, and though the engine ran quite well on the ground it presumably froze in the air.

Sq. Ldr. Douglas made one lap on the Blackburne Pixie at round about 36 m.p.h., thus scoring some 18 mins. towards his 10 hours and this was all the officially-recognised flying of the day.

Gaskell then took up the Westland Wood Pigeon. This showed as much reluctance to get up as did the Cranwell, and followed the Cranwell's example in seeking for a boost from the cliff with complete success. He went round both turning points, but landed in the aerodrome without crossing the line. He therefore gets no credit for his lap. It appears that his engine was not holding its revs. to his satisfaction.

A great deal of activity was to be observed amongst those who are officially eliminated. Although no official notice is to be taken of their efforts, they are to be allowed to fly to show that they can do so if their engines function. The Avro crew had been working away with carburettors, props, and so forth, and their engine now runs quite fairly steadily. There is no doubt that by to-morrow they will be able to fly excellently.

Vickers have removed their engine mounting and have found a local workshop wherein modifications can be made and they have hopes of getting through their bad vibration period without further trouble.

The Anzani engine mechanics took the A.N.E.C. engine in hand, fitted a new carburettor, and then spent two or three hours learning that starting a light aeroplane engine requires both knack and some degree of physical strength. In time they succeeded and got the engine to run in what sounded to be a most healthy fashion. A Rolls-Royce Condor with open exhausts probably makes more noise but it certainly does not make any more ear-disturbing a racket. Just after six Mr. James took her up and exhibited the machine's abilities. On appearances she is just about as creditable to Mr. Shackleton's designing abilities as is the Wee Bee.

Before lunch the Supermarine engine was run up a little on the ground and then Mr. Biard took her off. But the wind was not only strong but was appallingly bumpy and evidently flying was not pleasant. Mr. Biard flew round the aerodrome and landed.

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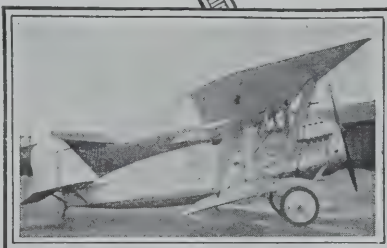
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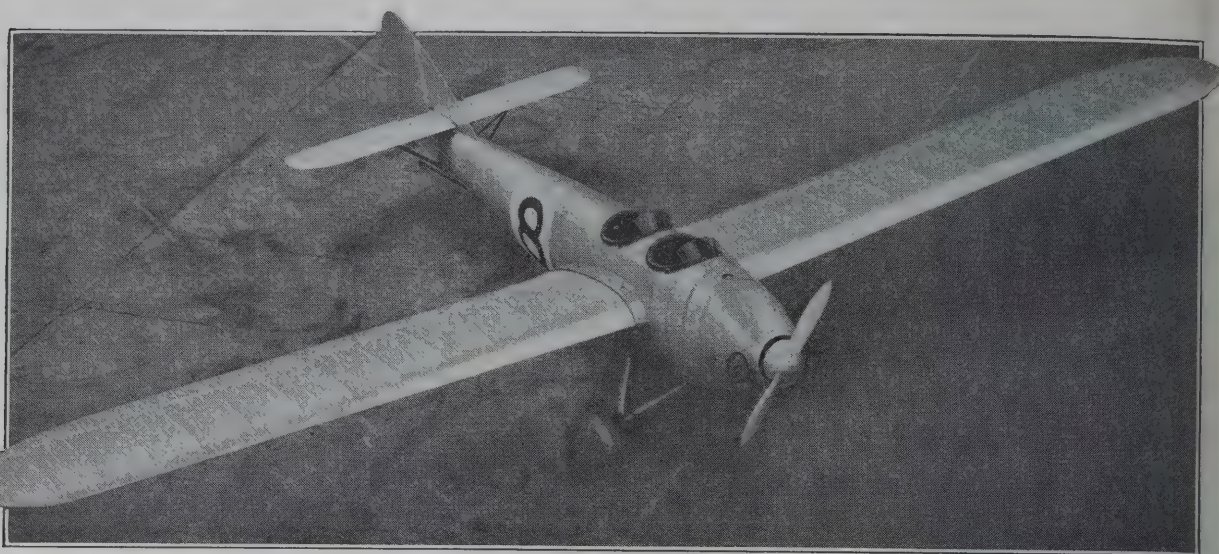
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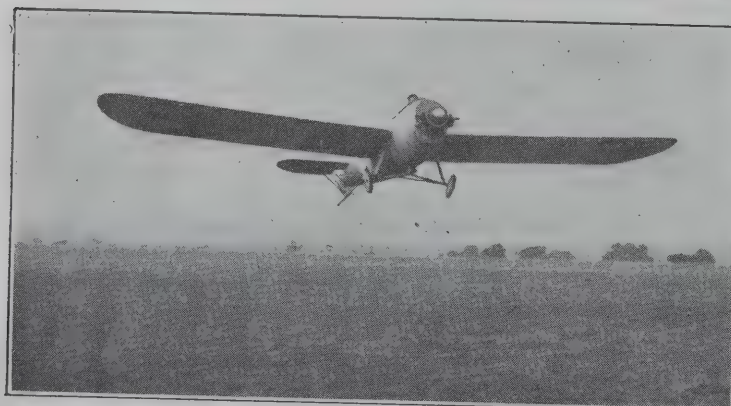
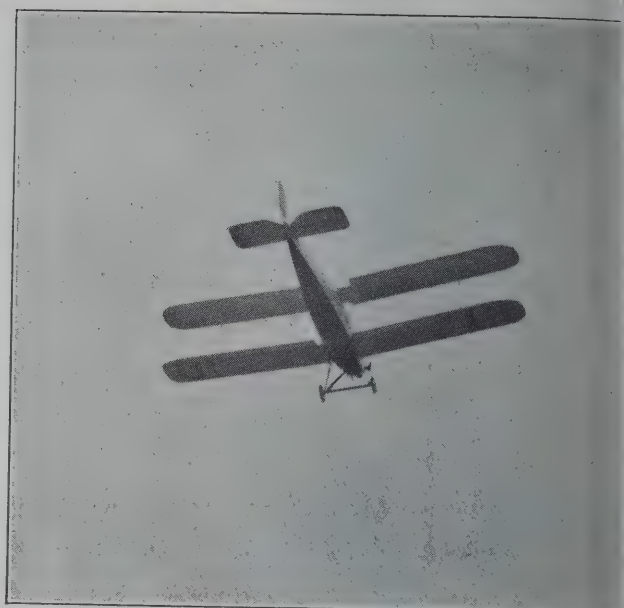
TWO-SEATER LIGHT AEROPLANES.—The pictures reproduced on this page show three of the machines which have been entered for the Lympne Competitions and which are definitely ready in good time for the eliminating tests which will take place between the printing of this page and its appearance.

At the head of the page is the Short Satellite seen from above. The extremely graceful lines of the duralumin fuselage, and the generally clean appearance of the whole machine are noteworthy. At the foot of the page are two views of the same machine taken during test flights at Lympne Aerodrome, with Mr. J. Lankester Parker up. The larger of the two—that on the left—gives evidence of the excellent view obtained from the front seat.

On the right of the page is the Avro Avis with the Cherub engine during a flight at Hamble. Mr. Bert Hinkler has flown the Avis in a wind of up to 45 m.p.h. carrying a passenger, and found it to be extremely easy to fly under those conditions.

The third photograph from the top is the second of the two Hawker biplanes which have now been given the type name of Cygnet. This machine is fitted with the Anzani Vee twin engine and is Sq. Ldr. Longton's mount in the contest.

Mr. Raynham's machine differs only in having an A.B.C. Scorpion engine instead of the Anzani.



GERMAN DEVELOPMENT OF GLIDERS AND LIGHT AEROPLANES.

By DR. ING. G. LACHMANN.

TYPICAL GERMAN GLIDER.—This photograph shows Herr Marten's glider which at this year's Rhön meeting. It can be seen that in general form the machine is of the Hannover Vampyr type, but that it shows the enormous lift ratio (about 18) characteristic of the recent German glider practice.



The meeting on the Rhön which took place in August for the fourth time had to struggle against most adverse weather conditions. There were about 70 entries. The larger part of the machines entered did appear on the Kuppe, although in the course of the four weeks only 125 flights were effected. In addition to the gliders there were also represented for the first time this year several light aeroplanes which made some 25 flights. Since the larger part of the flights could not be properly contested owing to the unfavourable weather, the meeting has been extended to the end of September.

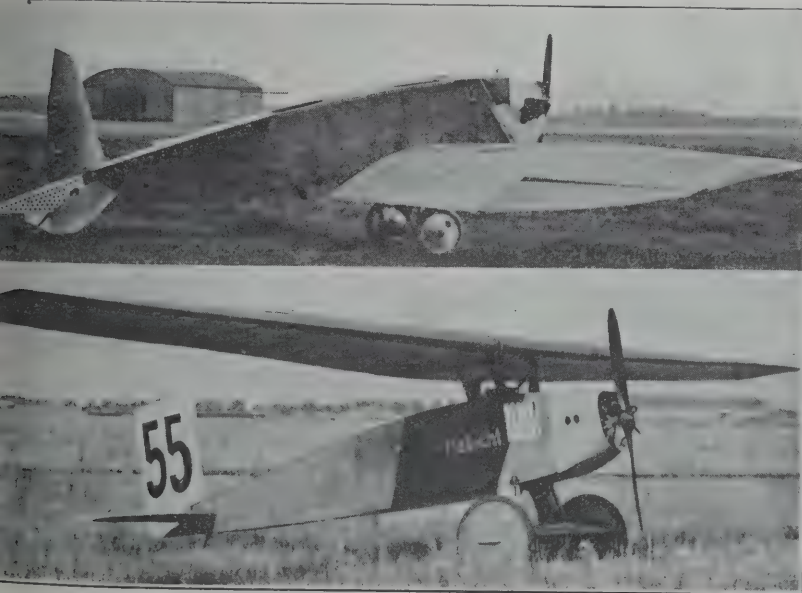
No special progress is to be recorded either in actual performances or from a technical point of view as compared with the previous year. The majority of the machines were of previously successful types, such as the Vampyr, Konsul, etc. Worthy to note were some successful flights of a perfectly tailless machine (Charlotte), the control of which was obtained by means of wing flaps. Tests were made for the first time with machines fitted with variable wing sections. In two of these machines the change in wing section was effected by a flap extending along the whole span of the wing. The third machine (Freiherr von Schertel) had a really variable profile, somewhat similar to the variable profile used by Parker in America some time ago. In this case the camber and thickness of the wing can be regulated. The designer's claim that the centre of pressure did not shift with the alteration of the profile was not confirmed, for the course of a sort flight the pilot had to operate the control vigorously in order to ensure stability. Speaking generally, the technical interest of the Rhön trials was not now so great as it was. The meeting was more in the nature of a national sporting event. The movement in favour of gliding is directed mainly to awakening, particularly in the technico-academic German youth, practical interest in aircraft technique and in flying.

In conjunction with the gliding meeting there was for the first time a competition for light aeroplanes. Except for one seater (Messerschmitt) they were all single-seaters. The most successful of them was the Udet Kolibri with a 750 c.c. engine which won the principal flight to Kissingen well as all the other tests for light aeroplanes. Udet succeeded in remaining in the air for 4½ hours.

The combination of the gliding meeting and the light aeroplane competition did not prove on the whole to be satisfactory. In future these two tests should be separated.

Considering the German light aeroplanes as a whole it may be said that all the types produced up to now represent a more or less suitable compromise with the problem of engines. Until quite recently there was in Germany no practical, really adequate light engine, so that one was entirely dependent upon the English makes (Douglas, Blackburne, A.B.C.). It is only lately that light German engines have appeared on the market, such as the Siemens engine which is fitted to the Habicht monoplane of Hentzen and Blume. This is a two-cylinder Vee motor-cycle engine with double overhead inlet and exhaust valves. Its stroke volume is 745 c.c., and at 3,500 revolutions the engine develops 20 h.p. Between the crankshaft and the airscrew shaft a gear is fitted which reduces the airscrew r.p.m. to 1,500. The Hirth engine specially designed for light aeroplanes is still awaiting its trials. The overwhelming number of the single-seater type is the result of a lack of engines of suitable power and the consequence of the difficulties which designers have to overcome when fitting light foreign engines. Up to now three two-seaters have been built in Germany with English engines: Blackburne, and A.B.C. Scorpion. Leading constructors of light aeroplanes both in Germany and in England are convinced that the development of this type of aircraft must lead from the single-seater to the reliable two-seater. The so-called "glider with an auxiliary engine," that is to say a glider, the engine of which is used only at starting and in unsuitable wind conditions, is looked upon by competent people as an interesting technical plaything. The practical tests which, for instance, were carried out by Martens seemed to indicate that the additional load and the increased resistance of the glider caused by the fitting of an auxiliary engine considerably reduced the aerodynamic efficiency of the glider and therefore spoilt its gliding properties.

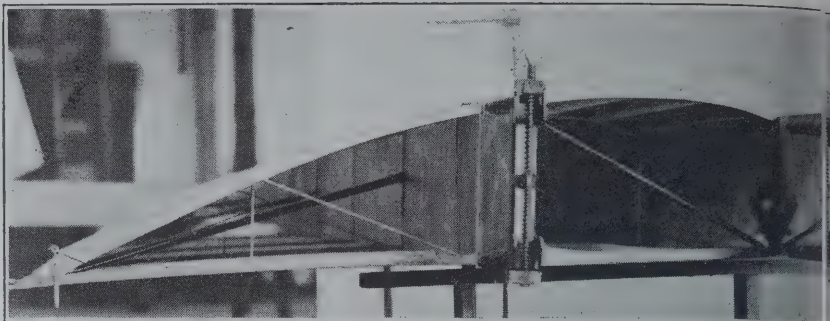
The attempted combination of these types in one single machine has led to some extraordinary methods of installing the power plant. Thus, for instance, that Baumer's Roter Teufel machine, a glider of the Grief type, had the engine (a Douglas 350 c.c.) placed behind the pilot's head with



TWO GERMAN LIGHT AEROPLANES.—The machine in the upper photograph is the Caspar C.L.E.17 two-seater with an A.B.C. Scorpion engine of 1,100 c.c. capacity. This machine is said to fly well and handle excellently, but its speed is only 60 m.p.h.

The lower photograph is of Hentzen and Blume's Habicht monoplane fitted with a Siemens 745 c.c. twin-cylinder Vee engine. A curious feature is the fitting to the airscrew of small auxiliary blades to provide a cooling draught for the engine.

The wing structure of the Caspar two-seater Light Aeroplane C.L.E.17. Note the absence of ribs in the ordinary sense of the term and the stringer members between spars which carry the plywood covering.



a shaft of about 1.5 m. long driving the airscrew which was supported over the fuselage in front of the pilot.

The tenacity with which certain Utopian minds in Germany cling to such types is the result of over-estimating the aerodynamic possibilities, although the forced development of gliders should have already indicated the limits of possible development.

The more sceptical, and to put it quite frankly, the more authoritative designers are agreed that the real problem in the development of light aeroplane construction is the engine itself and that safety in the handling of the machine will be ensured more than anything else by the fitting of an engine of ample surplus power.

With regard to types, the constructional development decidedly favours the high-winged monoplane type. There is on the part of pilots a certain objection to the simpler system of low-wing construction, largely on account of the risk to the occupants in the event of a somersault; in addition to that there is an objection to the low-winged machine which is found to be more difficult to get out of a spin than is the high-winged type or the biplane. The biplane is unlikely to be used in Germany for light aeroplanes at all, for the "bridge-construction" of wing structure is now regarded as purely a survival of obsolete practice.

The following is a description of some of the best-known German types:—

The Udet Kolibri is a high-winged cantilever monoplane with wings which are divisible at their centre. The fuselage is built entirely of wood. On the left side there is a small door giving access to the machine. The struts between fuselage and the wing are welded steel tubes. The specification of the machine is as follows:—Span 10 m. (32 ft. 10 in.); Wing area, 12.5 sq. m. (13.5 sq. ft.); Weight

empty, 150 kg. (330 lbs.); Weight loaded, 250 kg. (550 lbs.); Engine, Douglas 750 c.c.

The Habicht, by Hentzen and Blume, both of whom have built some successful gliders, is also a high-winged cantilever monoplane with fuselage of three-ply. The wings are built on a spar of the "Vampyr" type in which the front spar and wing edge form a torsion resisting tube. The elevator and rudders are balanced. The main data of the Habicht are: Span, 12 m. (39 ft. 4 in.); Wing area, 10.8 sq. m. (116 sq. ft.); Weight empty, 205 kg.; Engine, 745 c.c. Siemens.

In the monoplane of the Bahnbedarf A.G., of Darmstadt, the wings are fitted immediately above the upper part of the fuselage. The cantilever wing is one of the single spar type alluded to. For transport both wings may be dismantled by removing three bolts from the centre section of each wing, which can then be placed lengthwise on the fuselage. The controls are all balanced. The main dimensions, etc., are: Span, 10 m. (32 ft. 10 in.); Wing area, 12.5 sq. m. (135 sq. ft.); Total weight, 220 kg. (484 lbs.); Engine, Blackburne "Tit."

The Casparwerke Travemünde have produced a low-winged two-seater fitted with one 1,100 c.c. A.B.C. "Scorpion." The weight empty of this machine is 145 kg. (320 lbs.). Its construction shows several interesting features. The fuselage in particular is remarkable. A seamless welded steel section serves for the mounting and fitting of the engine, wing, undercarriage, seat and controls. The fuselage covering of three-ply serves largely as fairing and to support the wings. The wings are mainly of wood, three-ply covered to the spar, the covering taking all drag loads. The vertical and horizontal rudders are balanced. Carrying two persons with full load a top speed of 98 km./hour (60 m.p.h.) has been developed near the ground.

Opportunities in Spain.

The following information is taken from a report on the Industries and Commerce of Spain published by the Department of Overseas Trade, copies of which can be obtained, price 2s. 7d. post free from H.M. Stationery Office.

Although not strictly within the scope of this report, as the military or naval aviation requirements of the Spanish Government are likely to be of considerable importance during the year, a few general observations on this side may be of interest to British manufacturers.

While the vote for military aviation for 1923-24 amounted to over 40,000,000 pesetas, the only important contract secured by British manufacturers during the past year is one for 12 amphibian machines of the bomber type, but it is satisfactory to note that considerable enterprise has been shown by many firms, and the fact that their efforts have not been crowned with success is largely due to the low rate of exchange in competing countries.

A commission was appointed in October last to consider the amalgamation of the military, naval and civil air services, but at the moment of writing no reports have been made public. Should this amalgamation be decided on, it may make considerable difference to the general progress of aviation in this country.

It is understood that a proposal has been submitted to the Government by a group of Spanish military aviation experts that a federation should be formed by the various Spanish companies interested in aviation, and that the Government should guarantee to place orders with this federation up to a minimum amount of 8,500,000 pesetas annually. While, if this proposal is accepted, it will certainly tend to make Spain self-supporting in aviation material, it should open up possibilities for the sale of engines and of the special types of steels required for aviation, which are not made in Spain. The same would apply to other aeroplane parts, such as streamlined wires and swaged rods, magnetos, and ball bearings. Speaking broadly, while purchases of engines and other parts will probably continue to be made abroad, there is no doubt that the policy to-day is to make Spain self-supporting as far as possible, and it therefore behoves British manufacturers to consider seriously whether they cannot come to a working agreement with Spanish manufacturers, similar to that which has presumably been adopted by the Fokker group, as the sale of complete aeroplanes is undoubtedly becoming more difficult every day.

The report is one of the valuable series published from time to time from information supplied by the Consular Services throughout the World, by the Department of Overseas

Trade, which is certainly one of the most valuable and efficient as well as being one of the most obliging of our Government organisations. The extract above is an example of the type of information contained in these reports.

New Technical Literature.

- Aeronautical Research Committee R. & M. No. 899.*—Determination of Scale Effect on the Centre of Pressure of R.A.F.14 B.E.2C. Biplane with three values of Stagger. By the Aerodynamics Staff, R. & M. Price 1s. 6d. net.
- R. & M. No. 900.*—Report of the Design Panel on the Scale Effect on Lift, Drag, and Centre of Pressure of Complete Aeroplanes. Price 2s. net.
- R. & M. No. 906.*—The Measurement of Viscosity by means of Capillary Tubes. By Guy Parr. Price 1s. net.
- R. & M. No. 910.*—A Theory of Thin Aerofoils. By H. G. Gortler. Price 9d. net.
- United States National Advisory Committee for Aeronautics. Report No. 187.*—Flame Speed and Spark Intensity. By D. W. Ransford and F. B. Silsbee.
- Report No. 191.*—Elements of the Wing Section Theory and of Wing Theory. By M. M. Munk.
- Report No. 193.*—Pressure Distribution over the Wings of an Airplane in Flight. By F. H. Norton.
- Technical Note No. 198.*—Micarta Propellers I, Materials. By F. Caldwell and N. S. Clay.
- Technical Note No. 199.*—Micarta Propellers II, Methods of Construction. By Caldwell and Clay.
- Technical Note No. 200.*—Micarta Propellers III, General description of the Design. By Caldwell and Clay.

Those Who Write.

["Who's Who in Literature." (The Literary Year Book, Press, 67, Dale Street, Liverpool.) 538 + lii pp. price 12s. 6d. nett.]

"Who's Who in Literature," 1924, edited by M. Meredith, is now available for those who are interested in learning something about the personalities of those who write. The book also contains a good deal of interesting information concerning such things as art schools, press agencies, literary colleges, dramatic and literary agencies and so forth, all of which should be of value to people who hope to make a living out of writing.

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A Berlin—Stockholm Night Service.

The Junkers Co. have inaugurated a night air-mail service between Berlin and Stockholm. The machines to be used are Junkers "A" type seaplanes, open two-seaters adapted solely for the transport of mail and freight.

From Berlin to Warnemünde a complete system of route illumination has been installed. Between Warnemünde and Stockholm, the lighthouses and other marine navigation lights will be used.

As the 200 miles from Warnemünde to Stockholm is over the open sea permission is being sought to use Karlskrona for intermediate landings. As Karlskrona is a Swedish fortified area the company has offered to submit its aircraft to military inspection both on arrival and departure, and in this form the request has been recommended by the Swedish Naval Command for acceptance.

Real Commercial Aviation.

The "Deruluft" or Deutsch-Russische Luftverkehrsgesellschaft booked during the early part of this month the 50th flight of a certain Russian passenger on their Königsberg-Moscow service. As each of the flights over this service covers 1,200 kms. and takes about eight hours this particular passenger has flown altogether 60,000 kms. in about 400 hours.

Had he employed the railway he would have required about 115 travelling days for these journeys and by using air transport he has saved practically 100 days.

The staff of the Deruluft after the 50th flight gave their client a hearty welcome and the company presented him with a suitable souvenir.

An Italian Mission in France.

Some time ago it was reported that an Italian Mission had visited France and that a number of French machines had been tested in the air at Villacoublay by Italian flying officers.

Apart from some purchases of aircraft such as two Breguet XIXs and two Dewoitine D.1.C.1s which will be used for comparative tests, it is understood that the licence for constructing the 400 and 450 h.p. Lorraine-Diétrich engine has been acquired and that several hundred have been ordered from the Isotta-Fraschini Co. In addition three Nieuport Delage 29 C.1s have been purchased and this type of machine will be built under license by the Nieuport-Macchi Co. in future.

Air Concessions in Turkey.

The Angora Commission has decided to give temporary concessions to the Cie. Franco-Roumaine, a French air line which operates the Paris-Prague and Paris-Bucharest services, and to the Junkers Co. for a three-months' trial in conducting passenger and goods services between Angora and Constantinople.

It will be remembered that the Cie. Franco-Roumaine endeavoured to extend their Paris-Bucharest service to Constantinople last year but owing to international reasons they were compelled to abandon the scheme on the withdrawal of the Allied troops from Constantinople.

This concession now gives them the opportunity of re-opening the service should they prove successful in competing with the Junkers Co.

Two New Seaplane Speed Records.

On Aug. 3, at Sesto Calende, Signor Passaleva put a new World's Speed Record for Seaplanes by covering the prescribed 3-km. course four times, twice in each direction at 303.37 km.p.h. (189.6 m.p.h.).

He was flying a Savoia-Marchetti flying-boat fitted with 300 h.p. high compression Hispano-Suiza engine and Lamblin radiators. The previous record at 280.255 km.p.h. (175.16 m.p.h.) was also made by Signor Passaleva in a machine of the same type, but fitted with a normal 300 h.p. Hispano-Suiza engine.

On Aug. 9, M. Burri, flying a C.A.M.S. flying-boat (300 h.p. Hispano-Suiza engine) with a passenger, put up a speed record over a distance of 500 kms. by covering the distance at a speed of 123.986 km.p.h. (77.49 m.p.h.). The previous record was held by Lieut. F. W. Wead, of the U.S. Navy, at 118 km.p.h. (73.75 m.p.h.).

Major Barlow's Move.

Major T. M. Barlow, M.Sc., A.M.Inst.C.E., F.R.Ae.S., from April 1, 1918, has been the Chief Technical Officer of the Air Ministry's Experimental Station at Martles Heath, has resigned from that position and as from Sept. 1 has joined the staff of the Fairey Aviation Co. Ltd. as Chief Engineer. In that position he will superintend the Drawing Office and Technical staffs of the firm.

The Fairey Aviation Co. Ltd. may be felicitated upon the addition to their staff of a member of Major Barlow's extensive ability and experience, and Major Barlow upon having secured a position likely to give full scope to his very great capacity.

The Making of Steel.

Under the title of Firth's Steel the firm of Thos. Firth & Sons Ltd. have just issued a booklet of some 24 pages which contains a brief history of the firm from its foundation about 1840 down to the present day, occupying a couple of pages. The greater part of the space in the booklet is questionably devoted to illustrations showing some of the operations in the process of steel making and working as carried out in the firm's works at Sheffield.

These illustrations have been most excellently chosen and are unusually well reproduced and serve to give a very vivid impression of the magnitude of the firm's business and of the huge variety of works which is included in the business of steel making.

Mortgages, Charges, and Satisfaction.

DE HAVILLAND AIRCRAFT CO. LTD.—Further charge on the Lane Aerodrome, Edgware, Middlesex, dated July 23, 1920, securing £6,000. Holder:—A. S. Butler, 40, Park Lane, W.

CORNWALL AVIATION CO. LD.—Particulars filed of 25 debentures authorised Sept. 10, 1924, charged on the undertaking and property, present and future, including uncalled capital, the whole amount being now issued.

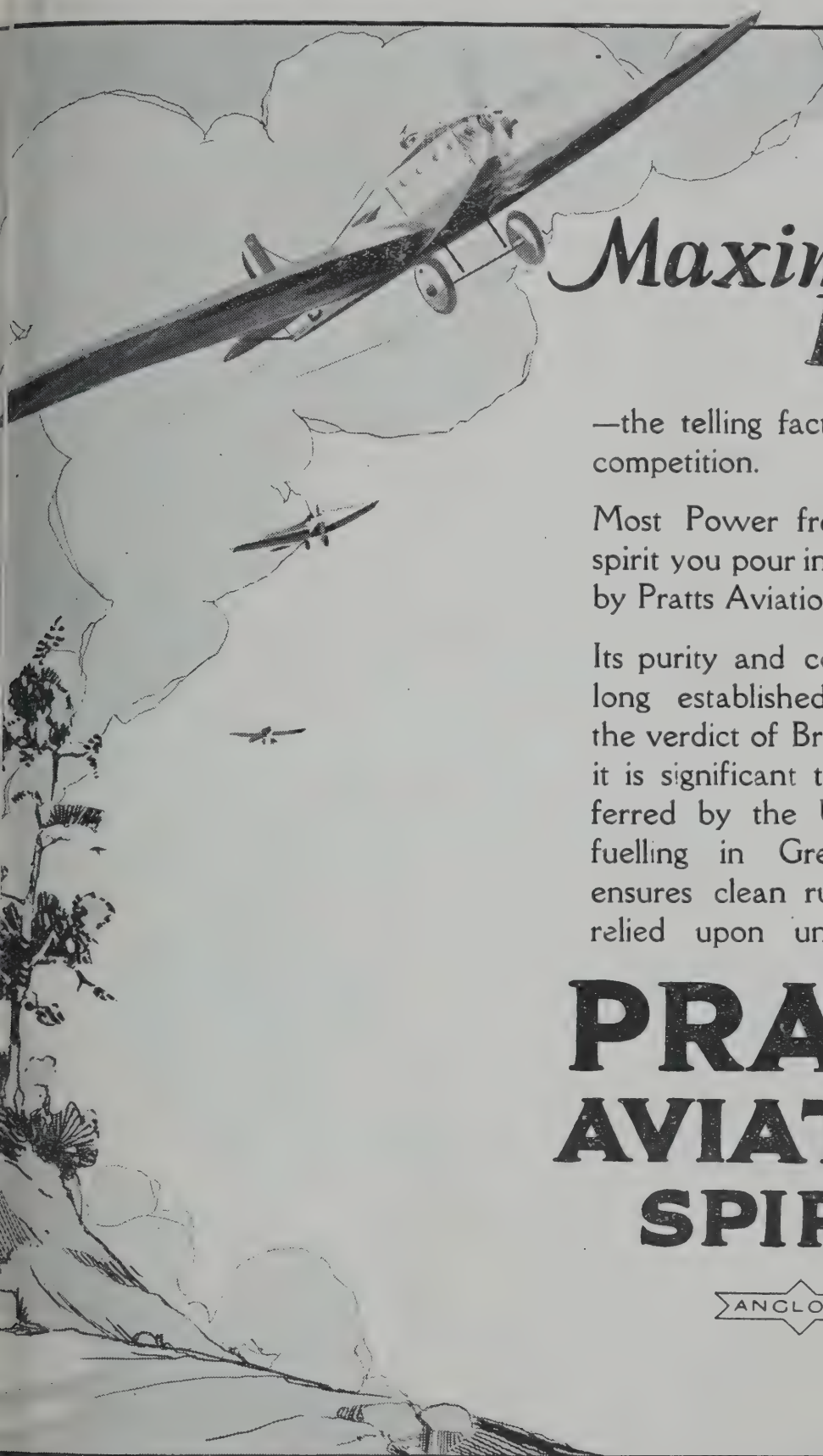
THE AIRCRAFT MANUFACTURING CO. LD. (In Liquidation)—Satisfaction in full on or before Oct. 22, 1923, of debentures (a) dated Sept. 14, 1916, securing £60,000, (b) dated Feb. 1, 1918, securing £100,000, (c) dated Oct. 15, 1918, securing £400,000, (d) dated Aug. 20, 1920, securing £25,000, and dated Sept. 28, 1920, securing £25,000.



AIR TRANSPORT IN CENTRAL AUSTRALIA.

The accompanying picture concerns a very interesting and meritorious flight carried out in 1920 by Mr. F. S. Briggs in a D.H.4 with a Rolls-Royce engine. The party, consisting of Mr. Francis Birtles, explorer, Mr. F. S. Briggs, pilot, and Mr. C. Bailey, ground engineer, set out from Melbourne on Sept. 26 for Alice Springs, Northern Territory, a distance of some 1,500 miles. Alice Springs was reached on Oct. 5, the party journeying via Maree, Oodnatta and Charlotte Waters. The return journey was completed in easy stages on Oct. 28.

The trip was in the nature of an air exploration and was arranged by Mr. Birtles, whose object was, inter alia, to secure information bearing on the route for the proposed North-South Railway connecting Oodnatta, South Australia, with Katherine, Northern Territory. The picture shows the D.H.4 near Charlotte Waters, with the usual method of transport whose speed is about 100 miles a week as compared with the De Havilland's 100 miles an hour.



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THE ROYAL AIR FORCE.

The London Gazette.

Sept. 23.

GENERAL DUTIES BRANCH.—The following Plt. Offs. on probation are confirmed in rank:—G. D. Hamilton, I. B. Pigott (May 10); W. C. Adams, W. J. Brett, F. E. R. Dixon, M.C., J. J. Fitzgerald, S. E. Hall, R. W. Holden, R. O. Jones, F. E. North, C. J. Pavia, G. M. Pitts-Tucker, J. E. Preston, G. A. Simons, H. G. Slater, H. Thomas (July 3); W. Wynter Morgan, M.C. (July 4); G. C. I. Strachan (July 14); L. W. C. Annable, G. D. Venables (Sept. 8).

Group Capt. P. F. M. Fellowes, D.S.O., is seconded for duty as Director of Airship Development, Royal Airship Works, Cardington (July 1). Sqn. Ldr. R. B. B. Colmore, O.B.E., is seconded for duty as Deputy Director of Airship Development, Royal Airship Works, Cardington (July 1); Sq. Ldr. C. S. Wynne-Eyton, D.S.O., is placed on half-pay, Scale B. from Sept. 13 to 22, 1924, inclusive; Wing Cdr. P. K. Wise, C.M.G., D.S.O., is restored to full pay from half-pay (Sept. 22); Flt. Lt. R. F. L. Dickey, D.S.C., is restored to full pay from half-pay (Aug. 30).

STORES BRANCH.—Flg. Off. H. F. Webb is placed on half-pay, scale B, from Sept. 13 to 16, 1924, inclusive.

RESERVE OF AIR FORCE OFFICERS.—The following officers are confirmed in rank with effect from the dates indicated:—FLG. OFFS.—H. J. Andrews (Mar. 11); D. C. Anderson, G. Bliss, M.M., R. H. McIntosh, F. V. Webb (Sept. 18). PLT. OFFS.—E. Crewdson, J. J. Hickman, H. S. Howard, L. D. P. Joseph, A. G. Squire, J. H. C. Wake (Sept. 18).

Sept. 26.

GENERAL DUTIES BRANCH.—The following are granted perm. comms. as Pilot Officers with effect from Sept. 15, and with sen. of Sept. 15, 1923:—E. C. de V. Lart, R. Melbourne. Plt. Off. on probation C. H. A. Denny relinquishes his short service comm. on account of ill-health (Sept. 21).

MEDICAL BRANCH.—The following are granted perm. comms. in the ranks stated (Sept. 24):—Flt. Lt. E. D. D. Dickson, M.B., F.R.C.S.(E.); Flg. Off. J. G. Russell, M.B., B.A.

The King has directed that the award of the Military Cross to Arnold Lawson Harrow-Bunn, late temporary captain, R.A.F., gazetted on Jan. 10, 1917, shall be cancelled, and that his name shall be erased from the register in consequence of his having been convicted by the civil power.

Appointments.

Week ending Sept. 29.

GENERAL DUTIES BRANCH.—Air Commodore H. C. T. Dowding, C.M.G., to H.Q., Iraq, for duty as Chief Staff Officer, 19/9.

Wing Commanders N. J. Gill, C.B.E., M.C., to R.A.F. Depot, whilst attending course "B" at Imperial College of Science and Technology, 7/10. H. Blackburn, M.C., A.F.C., to Aeroplane and Arm. Exper. Estab., Martlesham Heath, pending taking over command, 25/9. L. D. D. McKean, O.B.E., to No. 216 Sqdn., Egypt, pending taking over command, 18/9. A. H. W. E. Wynn, O.B.E., to H.Q., Iraq, for Air Staff Duties, 18/9.

Squadron Leaders B. F. Moore, to Station Commandant, Iraq, 18/9. R. M. Hill, M.C., A.F.C., to No. 45 Sqdn., Iraq, 18/9. A. F. A. Hooper, O.B.E., to Aircraft Depot, Iraq, 18/9. D. E. Stodart, D.S.O., D.F.C., to No. 84 Sqdn., Iraq, 18/9. W. A. McClaughry, D.S.O., M.C., D.F.C., to No. 8 Sqdn., Iraq, 18/9. G. G. H. Cooke, D.S.C., A.F.C., to No. 4 Arm. Car. Co., Iraq, 18/9. E. O. Grenfell, M.C., D.F.C., A.F.C., to R.A.F. Depot on transfer to Home Estab., 1/9. V. Greenwood, to H.Q., Egypt, 24/4. A. S. C. S. MacLaren, O.B.E., M.C., D.F.C., A.F.C., to R.A.F. Depot, 20/9. C. S. Wynne-Eyton, D.S.O., to No. 28 Sqdn., India, 23/9.

Flight Lieutenants C. Turner, A.F.C., to H.Q., Iraq, 15/8. H. B. Russell, A.F.C., to R.A.F. Cadet College, Cranwell, on transfer to Home Estab., 1/9. J. F. Gordon, D.F.C., to H.Q., Inland Area, 15/9. H. O. Long, D.S.O., to No. 6 Sqdn., Iraq, 23/9. C. A. Stevens, M.C., to No. 20 Sqdn., India, 23/9. A. F. Quinlan, to No. 5 Sqdn., India, 23/9. C. E. H. James, M.C., D. F. Stevenson, D.S.O., M.C., D. K. Cameron, D. H. de Burgh, A.F.C., to H.Q., Iraq, 18/9. F. H. Coleman, to No. 5 Arm. Car. Co., Iraq, 18/9. T. Q. Studd, D.F.C., to No. 70 Sqdn., Iraq, 18/9. W. S. Caster, M.C., to No. 30 Sqdn., Iraq, 18/9. G. E. Godsave, to No. 4 Arm. Car. Co., Iraq, 18/9. J. F. A. Day, A.F.C., to St. Noble, N. P. Dixon, A.F.C., G. R. Ashton, to Aircraft Depot, Iraq, 18/9. C. McM. Laing, M.C., A.F.C., to No. 45 Sqdn., Iraq, 18/9. P. J. W. Brady, D.S.M., W. L. Fenwick, to Arm. Car. Wing, H.Q., Iraq, 18/9. T. C. Luke, M.C., W. B. E. Powell, to Basrah Group H.Q., Iraq, 18/9. R. J. Divers, M.B.E., to No. 8 Sqdn., Iraq, 18/9. T. L. Lowe, to No. 84 Sqdn., Iraq, 18/9. D. L. Blackford, to No. 1 Sqdn., Iraq, 18/9.

Flying Officers J. Rodger, D.S.M., W. Gill, and J. H. Slater, M.B.E., to H.Q., Iraq, 18/9. A. P. White, to No. 8 Sqdn., Iraq, 18/9. J. R. Wolley and C. H. A. Stevens, to Aircraft Depot, Iraq, 18/9. R. B. Harnden, to Stores Depot, Iraq, 18/9. F. W. Barkley, to No. 45 Sqdn., Iraq, 18/9. J. B. Barrett, to No. 6 Sqdn., Iraq, 18/9. K. C. Garvie, to No. 1 Sqdn., Iraq, 18/9. G. C. Shepherd, to No. 55 Sqdn., Iraq, 18/9. E. Reid, to No. 1 Sqdn., Iraq, 18/9. J. Durward, to No. 3 Wing H.Q., India, 1/9. C. R. Stewart, to R.A.F. Depot, on transfer to Home Estab., 8/9. R. F. Browne, D.F.C., to Reception Depot, West Drayton, 29/9. W. N. Plenderleith, to R.A.F. Depot, 20/9. C. V. Lock, to No. 19 Sqdn., Duxford, 29/9. C. Rapley, to Aircraft Park, India, 23/9. J. J. C. Cocks and G. N. Carroll, to No. 60 Sqdn., India, 23/9. (Hon. Flt. Lt.) A. N. MacNeal, to No. 23 Sqdn., India, 23/9. E. T. O'N. Hogben, to No. 20 Sqdn., India, 23/9. H. E. E. Weblin, to No. 84 Sqdn., Iraq, 23/9. C. P. Brown, D.F.C., to Air Ministry, 15/9. J. R. R. Harvey, M.M., to I.A.A.D., Henlow, 22/9. J. Parsons, to R.A.F. Depot (Non-effective Pool), on transfer to Home Estab., 8/10. I. A. Bertram, G. I. C. Peacocke, and A. W. Rowbotham, to No. 5 F.T.S., Sealand, on appointment to S.S. Com., 15/9.

Pilot Officers.—The undermentioned Pilot Officers are all posted to No. 5 F.T.S., Sealand, on appointment to S.S. Comms., 15/9. E. C. G. Badcock, C. N. Boswell, G. B. Collet, L. Connolly, L. Dalton-Morris, J. A. C. Florence, A. H. Frost, J. S. Georgeson, A. J. Walker,

G. A. Whitehead, H. C. MacPhail, E. B. C. Groner, G. D. Ha. R. G. M. Hill, R. D. Kerans, A. R. C. Kirby, L. R. Mizen, Nolan, W. F. Rimmer, F. C. Rowland, R. J. Stevens, C. W. Swi. D. W. Trotter, and J. W. Van. de Beeck. C. G. M. Anderson. L. C. Lewis, to No. 30 Sqdn., Iraq, 23/9. C. H. W. Boldero. J. H. Woodin, to No. 55 Sqdn., Iraq, 23/9. D. C. Burnley, C. N. Mumby and N. W. F. Mason, to No. 60 Sqdn., India, 23/9. L. Ross and S. M. Thomas, to No. 8 Sqdn., Iraq, 23/9. J. B. Town. to No. 27 Sqdn., India, 23/9. E. C. de V. Lart and R. Melbou. to No. 5 F.T.S., Sealand, on appointment to Perm. Comms., J. E. Tomes, to No. 84 Sqdn., Iraq, 18/9. S. A. Young and Addams, to No. 1 Sqdn., Iraq, 18/9. I. W. New, to No. 70. Iraq, 18/9. G. H. W. Selby-Lowndes, to No. 6 Sqdn., Iraq, H. D. Mitchelmore, to No. 1 Sqdn., Iraq, 18/9. F. W. L. Beaumont, to No. 30 Sqdn., Iraq, 18/9.

MEDICAL BRANCH.—Flying Officers (Medical) J. B. Gregor, L. McCullagh, M.B., S. G. Gilmore, R. H. Stanbridge, G. P. O. O'Con. M.B., and R. T. F. Grace, M.B., to H.Q., Iraq, 18/9. Flying Of. (Q.M. Medical) C. B. Willsher, to Basrah Combined Hospital, 1/10.

STORES BRANCH.—Squadron Leaders (Stores) W. E. Aylin, O. J. to Basrah Group H.Q., Iraq, 18/9. G. Stevens, O.B.E., to Air. Depot, Iraq, 18/9. F. Grave, M.B.E., to H.Q., Iraq, 18/9. Squad. Leader (Accountant) R. Whyte, to No. 3 Stores Depot, Milton, 18/9. Flight Lieutenant (Accountant) W. H. Hoile, M.B.E., to No. 1 Sc. of T.T. (Boys), Halton, 1/10. E. C. M. Knott, to H.Q., Iraq, 18/9. Flight Lieutenants (Stores) A. W. Turner and H. Jones, to St. Depot, Iraq, 18/9. F. R. Wilkins, to H.Q., Iraq, 18/9. W. Kingston, to R.A.F. Depot, on transfer to Home Estab., 1/9. Fl. Officers (Accountant) J. P. A. Fulton, to Brigade Accountant O. Iraq, 10/7. R. W. Freeman, to No. 45 Sqdn., Iraq, 2/9. Fl. Officers (Stores) R. Craig, to Stores Depot, Iraq, 18/9. H. F. W. to Aircraft Depot, Iraq, 18/9. R. D. G. Macroste, M.B.E., to N. Sqdn., Iraq, 18/9. R. G. Gore, to No. 5 Arm. Car. Coy., Iraq, 18/9. H. B. S. Ballantyne, to No. 70 Sqdn., Iraq, 18/9.

CHAPLAIN'S BRANCH.—The Revd. G. H. Collier, M.A., to Air. Depot, Egypt, 18/9.

Mr. Leach on the Air Weapon.

The Under-Secretary of State for Air (Mr. Leach) speaking at a meeting of the Independent Labour Party at Bradford, on Sept. 29, said that they could not leave Iraq so long as the mandate accepted from the League of Nations remained in force. The Labour Government said the air weapon was not to be used except on the request of the Iraq authorities and they had to show why the air weapon and no other could serve the purpose of the moment. The British High Commissioner on the spot must personally examine the circumstances, and the Air Officer Commanding must also carefully

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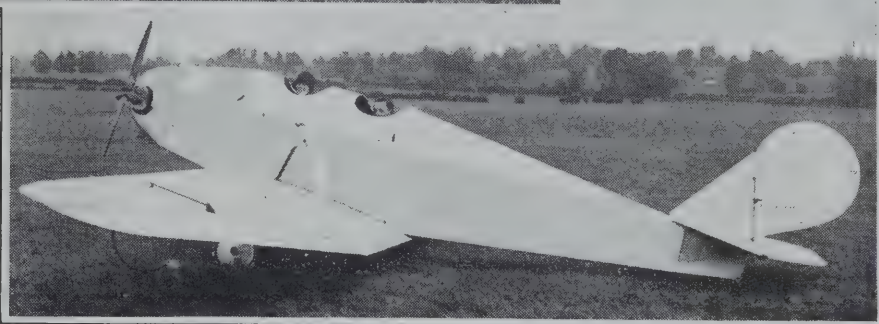
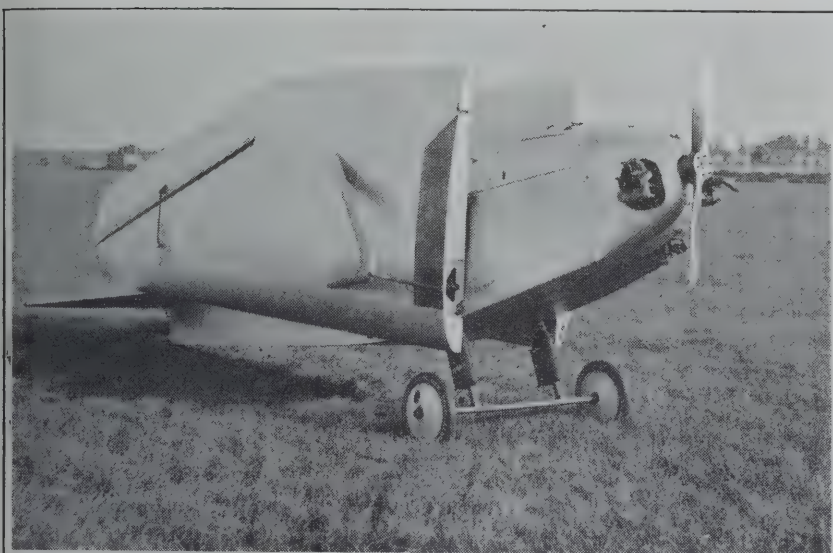


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go into all the facts. In no circumstances was the air weapon to be employed without warning notice being given.

The air weapon had been used when a chief in the north had dammed the River Euphrates. That meant that thousands of peaceful cultivators of the soil lower down the river would ultimately have starved for want of water to irrigate their land. The warning notice was sent, but the chief declined to have anything to do with British authority. The Air Force destroyed the dam and the chief's forts, and the problem was solved.

The Sheerness Course.

The following officer of the R.A.F. is among the officers appointed to take the 16th course at the Army Senior Officers' School at Sheerness:—Wing Cdr. G. F. Pretyma, D.S.O., O.B.E.

The Fleet Air Arm.

An Admiralty instruction, dated Sept. 19, states that officers attached to the R.A.F. under the recent Fleet Order and Naval Observers will come under Naval rules as regards leave when serving afloat, and under R.A.F. rules when serving ashore in units under R.A.F. discipline.

The R.A.F. in Iraq.

The Baghdad correspondent of the *Morning Post*, in a communication dated Sept. 22, states:—

Turks have again crossed the Iraq frontier, this time in force with guns, and have driven back the Iraqi police posts. They are advancing by night and taking cover by day to avoid aerial action.

The Turks are continuing to advance, in spite of aerial resistance. It is now certain that their objective is the punishment of Assyrians who captured the Wali of Hakkari. Taking advantage of Iraq's northern boundary being unsettled, they are making a detour through Iraq territory.

The *Morning Post* correspondent in a message from Baghdad dated Sept. 24, states:—

A battalion of native British levies, serving under British officers, is retiring on Amadia, 65 miles N.N.W. of Mosul, in face of the Turkish advance. A British aeroplane crashed, and both of its occupants were injured.

The *Morning Post* adds:—

So far as is known, the facts are as follows: On the 14th inst. Turkish troops were seen crossing the Iraq frontier near Amadia. British aeroplanes, of the Mesopotamian section, were despatched to repel them. The advancing troops were subjected to machine-gun fire from the air and retired, leaving a number of dead upon the

field. Some of the casualties were discovered to be Turkish troops.

Fethi Bey, the Turkish representative at Geneva, protested League of Nations that Great Britain had violated the Lausanne Article III. of which stipulates that pending the permanent re-tion of the frontier no military or other movement shall be made to modify the present state of the Iraq territory. Fethi Bey con- that British aeroplanes had crossed the boundary and had at Turkish troops on the Turkish side of the boundary.

An Accident at Wembley.

One of the machines taking part in the Tattoo caught after a forced landing on Sept. 19. The following statement with reference to the accident was issued by Villiers, of the Air Ministry, representing the Government at the Stadium displays:—

"One of the three machines taking part in the searchlight torchlight tattoo at the Stadium, Wembley, was compelled to a forced landing on the emergency aerodrome situated at the side of the Stadium. The pilot succeeded in landing his machine successfully, but after landing it turned over on its back. The and observer were able to extricate themselves from the machine. The machine then burst into flames and was burnt. The pilot and observer were both unhurt."

No. 18 Squadron Dinner.

The annual dinner of No. 18 Squadron Old Comrades' Association will be held at the Imperial Hotel on Nov. 8. Tickets each. Officers and other ranks who are interested are invited to communicate with the Secretary, J. Fuller, 19, Burlington Road, Water.

Among those who will attend the dinner are Wing Cdr. Carmichael, Major Lewis, Capt. Adams, Gale and Bell, Lts. H. Bennett, Peskett, and Paynter.

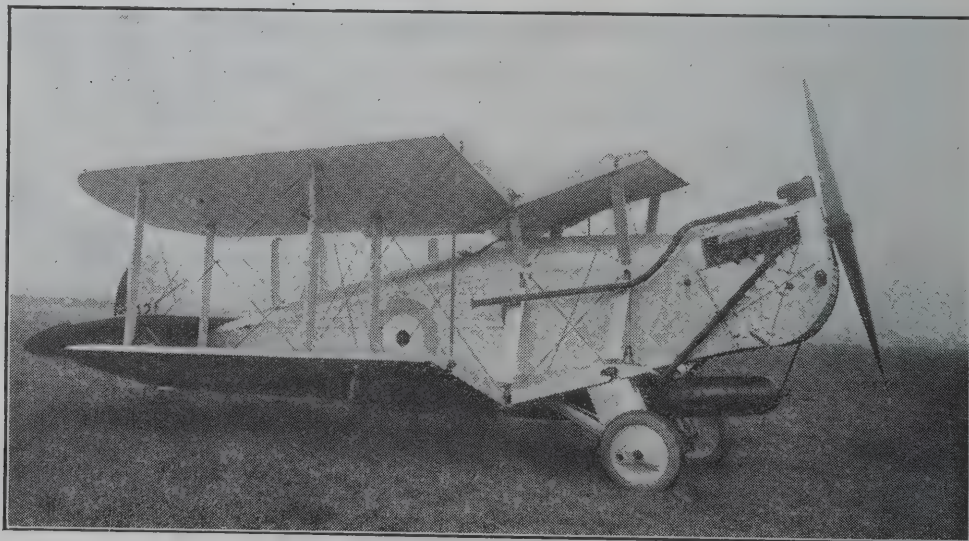
A 28 Squadron Dinner.

A Re-Union of 28 Squadron Old Boys' Association is being on Saturday, Oct. 4, at The Old Bell, 123, Holborn (adj. Gamage). Assemble 6 p.m. Supper 6.30. The funds of the Association are giving this supper free (including drinks) to all members now again in England. Will all past and present pilots and observers of 28 communicate immediately with C. H. Brewer, Monmouth Club, Newport, Mon.

58 Squadron Dinner.

It is proposed to hold a reunion dinner in London for officers of 58 Squadron on a Saturday at the end of September or beginning of October. It is understood that certain old war-time members now again in England. Will all past and present pilots and observers of 58 communicate immediately with C. H. Brewer, Monmouth Club, Newport, Mon.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 13; Tuesday, 18; Wednesday, 19; Thursday, 14; Friday, 16; Saturday, 16; Sunday, 14.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 71, passengers 342, freight 25 tons.

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Paris—London: Machines 25, passengers 88, freight 7 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 12, passengers 48.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 9, passengers 0

DE HAVILLAND HIRE:

Machines 2, passengers 3

Total number of trips by British machines: 73, carrying 345 passengers. Foreign machines: 37, carrying 136 passengers.

Comparative Figures:

For week ending Sept. 28:

Machines, 110; Passengers, 481; Crews, 132; Total personnel, 613

Corresponding week, 1923:

Machines, 106; Passengers, 350; Crews, 162; Total personnel, 512

Corresponding week, 1922:

Machines, 106; Passengers, 321; Crews, 190; Total personnel, 511

Corresponding week, 1921:

Machines, 82; Passengers, 208; Crews, 105; Total personnel, 313

Corresponding week, 1920:

Machines, 108; Passengers, 175; Crews, 132; Total personnel, 307.

A Risky Business.

A Goliath came in to Lympne on Monday with the mechanic sitting on the wing by the right engine. It transpired that the throttle control broke about five minutes after leaving Croydon, so the mechanic, M. Richard, climbed over the side and lay on the plane for 45 minutes operating the throttle. He was covered in oil when he arrived.

There were eight passengers on board and one of them decided that, discretion being the better part of valour, he would complete the journey to Paris by train.

The incident reminds one of the lad who held his hand over a hole in a wall and prevented Holland from being flooded.

American Speed Pilot Killed.

On Sept. 2 Lieut. A. Pearson, U.S. Army Air Service, was killed at the Wilbur Wright Field, Fairfield, Ohio, while flying the 1923 Curtiss Navy Racer (500 h.p. Curtiss D.12a engine).

The Navy Curtiss Racer had been given to the Army Service for use in this year's Pulitzer Race, and Lieut. Pearson had been nominated as pilot.

He was practising on the machine over the 3-km. course and on flattening out after diving on to the course the wing appeared to collapse and the machine dived straight into the ground from 300 feet. The pilot was either thrown out of the cockpit by the impact, or jumped out at the last minute but he was dead when rescuers arrived at the scene of the accident.

PERSONAL NOTICES.

MARRIAGES.

READ—AINSLIE.—On Sept. 27, at Sherborne Abbey, by the Rev. N. P. Tower, Plt. Off. Roderick F. de R. Read, R.A.F., to Marion John, youngest daughter of the late R. St. J. Ainslie.

RIDDLE—WICKHAM.—On Sept. 18, Flt. Lt. Cecil B. Riddle, R.A.F., youngest son of Mr. and the late Mrs. F. H. B. Riddle, to Dr. Gwendoline Wickham, younger daughter of Mr. and Mrs. Geo. Wickham, of Wandsworth Common.

FORTHCOMING MARRIAGES.

BEAUMONT—RIPLEY.—The engagement is announced between L. C. Beaumont, R.A.F., eldest son of the late Capt. D. J. Beaumont Gloucester Regt., and Mrs. Beaumont, of Guernsey, C.I., and E. Corinne, younger daughter of Mr. and Mrs. Horace H. Ripley, Purley, Surrey.

BURGE—SMITH.—On Sept. 9, at St. Paul's Cathedral, Valletta, Malta, by Revd. Canon Moreton, C.F., Glynguard Robert Burge, 1st Lieut. Officer, R.A.F., to Cicely Joyce, second daughter of Mr. and Mrs. F. H. Smith, Felixstowe and Ipswich.

GAMBLE—DAVIES.—A marriage has been arranged between Charles Frederick Snowden-Gamble (late R.N.V.R. and R.A.F.), 8, Bryanston Street, W.1, son of Charles William Gamble (late R.N.V.R. and R.A.F.), of Manchester, and Gertrude, younger daughter of Mr. and Mrs. Arlington-Davies, of Gwernvale Cottage, Criccieth, North Wales.

BIRTH.

BANKES-JONES.—On Sept. 13, at 121, Wilbury-road, Letchworth, to Edith (née Siepmann), wife of the Rev. R. M. Fankes-Jones, R.A.F.—a son.

HUBERT.—On Sept. 25, at 2, Passage Lenôtre, Le Vésinet, France, to the wife of Charles Hubert—a son.

MARTIN.—On Sept. 7, at a nursing home, Chester, to Laili Jo (née Kingsbury), the wife of A. W. Graham Martin, Pilot Officer, R.A.F.—a son.

WILSON.—On Sept. 8, at a nursing home, Chester, to Constance (née Manaton), wife of Flt. Lt. W. F. Wilson, R.A.F.—a son.

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Edited by C. G. GREGG

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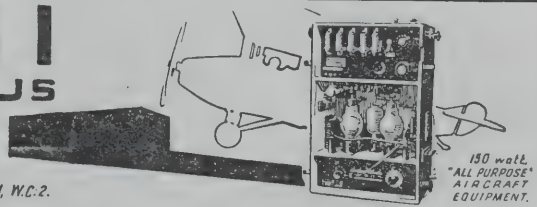
SUPERMARINE NAVIGATION.



The two winning crews of the rowing section, Supermarine Aviation Works Sports Club. Above:—The racing gig's crew drawn from the wiremen and riggers' shops, bow N. Jeans, No. 2 B. Egerton, No. 3 W. Bessant, stroke H. Hunt, cox J. Lister. Below:—The four-oar racing galley's crew drawn from the boat and hull-shops, bow G. Broom, No. 2 R. Drew, No. 3 R. Diaper, stroke L. Diaper, cox J. Lister.

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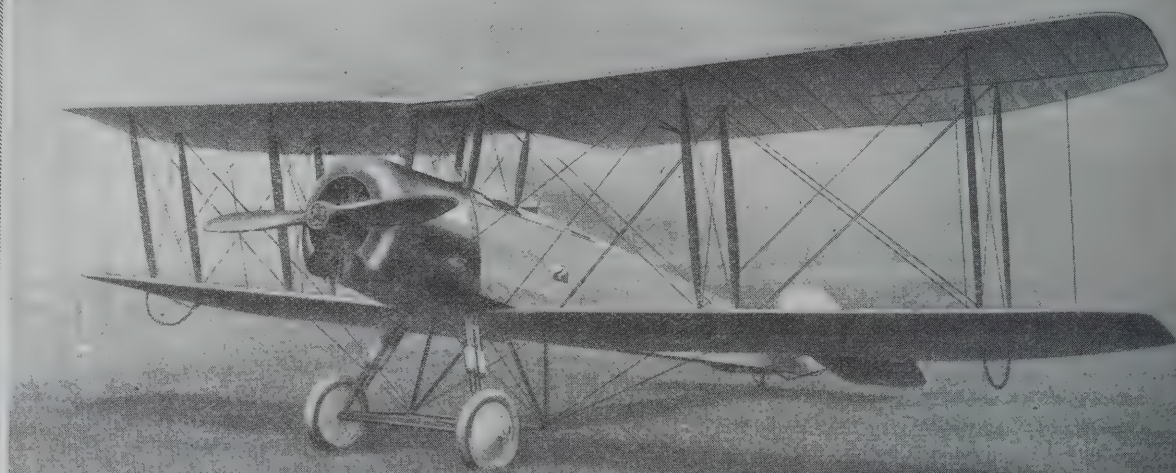
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ON THE RULES OF AIR WAR.—V.

OBJECTS OF ART.

ARTICLE 26.—In bombardment by aircraft, all necessary must be taken by the commander to spare as far as possible buildings dedicated to public worship, art, science, literary purposes, historic monuments, hospital ships, and other places where the sick and wounded are gathered, provided such buildings, objects or places are not used for military purposes. Such buildings, objects or places must by day be indicated by marks visible from the air. The use of marks to indicate other buildings, objects or places than those specified above is to be deemed an act of perfidy.

When marks used as aforesaid shall be in the case of buildings protected under the Geneva Convention the red cross on white ground, and in the case of other protected buildings a large rectangular panel divided diagonally into two triangular portions, one black and the other white. Belligerent who desires to secure by night the protection of hospitals and other privileged buildings above mentioned must take the necessary measures to render the special marks sufficiently visible.

We come up against one of the subjects which was a constant source of controversy during the War 1914-18. Belligerents accused the other of bombing hospitals and buildings which were not of military importance. It is definitely on record that a bomb dropped by either a German or French aviator operating from Luxeuil, in the days of Captain Elder, R.N., had a large force of R.N.A.S. there, put a bomb through the roof of a circus at the time of a performance. The aviators concerned under the impression that this large building in such a prominent city must necessarily be of military importance. A number of women and children were killed and photographs of the consequent public funeral provided the Germans with excellent anti-British propaganda. In a somewhat similar way when the Germans dropped bombs on a number of hospital huts near Etaples and killed hospital nurses and a number of wounded men we have photographs of the wreckage for propagandist purposes. The matter of fact in neither instance were the aviators concerned. The Germans gave no indication that their circus was a target. But even if it had been a hospital and had been marked with a red cross it would have stood just about as much chance of being hit by accident. And the fact that it was hit by the aviator who tried to bomb it was probably no more a matter of luck than of judgment, considering the bomb-sights available at the time and the types of bombs that were used.

On the other hand at Etaples the hospitals were surrounded by rest camps and ammunition dumps and so forth, a very good reason that dumps, hospitals and camps were in close proximity to railways and therefore are invariably close to one another. The Germans had no intentions of bombing the hospitals but they certainly did intend to bomb the camps, as was perfectly justifiable. Moreover it is very difficult to tell whether the hospital huts in that area were adequately marked. It is even said that some of them were not at all, for one was told shortly after the incident that the raiding German aviators who was brought down by the failure near Etaples and was brought next day to the road which passed through the wreckage expressed considerable annoyance because as he came he noticed a man or men busily at work painting signs on what remained of the roofs of some of the

Probably the idea was to take aerial photographs of the hospitals with the red cross in order to emphasise the "humanity" of the German bombers. Of course it may have been that the red crosses which had been damaged by fire were being renovated in view of future action. On the other hand it may not have been so.

In any case the raid was made at night so there can be practically nothing to indicate which were hospitals and which were huts for troops.

Therefore Article 25 unlike many of the others has a great deal to recommend it. All buildings which "are not at the time used for military purposes" should be very distinctly marked as such. But it should be clearly understood that if hospitals are surrounded by ammunition or military hutments no blame attaches to an aviator whose bomb intended for a dump unfortunately hits a hospital.

ARTICLE 26.—The following special rules are adopted for the purpose of enabling States to obtain more efficient protection for important historic monuments situated within their territory, provided that they are willing to refrain from the use of such monuments and a surrounding zone for military purposes, and to accept a special régime for their inspection:—

1. A State shall be entitled, if it sees fit, to establish a zone of protection round such monuments situated in its territory. Such zones shall in time of war enjoy immunity from bombardment.

2. The monuments round which a zone is to be established shall be notified to other Powers in peace time through the diplomatic channels: the notification shall also indicate the limits of the zones. The notification may not be withdrawn in time of war.

3. The zone of protection may include in addition to the area actually occupied by the monument or group of monuments, an outer zone, not exceeding 500 metres in width, measured from the circumference of the said area.

4. Marks clearly visible from aircraft either by day or by night will be employed for the purpose of ensuring the identification by belligerent airmen of the limits of the zones.

5. The marks in the monuments themselves will be those defined in Article 25. The marks employed for indicating the surrounding zones will be fixed by each State adopting the provisions of this article, and will be notified to other Powers at the same time as the monuments and zones are notified.

6. Any abusive use of the marks indicating the zones referred to in paragraph 5 will be regarded as an act of perfidy.

7. A State adopting the provisions of this article must abstain from using the monument and the surrounding zone for military purposes, or for the benefit in any way whatever of its military organisation, or from committing within such monument or zone any act with a military purpose in view.

8. An inspection committee consisting of three neutral representatives accredited to the State adopting the provisions of this article, or their delegates, shall be appointed for the purpose of ensuring that no violation is committed of the provisions of paragraph 7. One of the members of the committee of inspection shall be the representative (or his delegate) of the State to which has been entrusted the interests of the opposing belligerent.

This rule has been evidently produced because of the shelling of Reims Cathedral and the bombing of various and sundry monuments in Venice and other ancient Italian cities.

The Commission state that the Italian Delegation proposed the creation of a zone round each historic monument within which zone the State concerned was debarred from doing any act which constituted a use of the area for military purposes. This proposal included the inspection of the zone by neutral observers to make sure that the rule is not being infringed.

The Commission point out that the words "historic monument" cover all monuments which by reason of their great artistic value are historic to-day or will become historic in the future. Personally one would hate to say that some recent statues of celebrities are ever likely to be historic, whereas Mr. Epstein's allegedly indecent figures opposite Charing Cross Hospital will probably become so.

Further it is stated that considerable agitation was expressed in accepting the provision that notification must be made in time of peace. And it is made quite clear that in any

case the adoption of the system is only permissive, that is to say, a State need not notify such zones unless it wishes to do so. This also is a difficult point. One can imagine the United States solemnly notifying Great Britain that if we fight one another we must not bomb the statue in New York Harbour which was erected in pious memory of the days when the U.S. had Liberty.

The Commission point out also that the effect of allowing a 500-metre zone to be drawn round each monument, as, for instance, in Venice or Florence, which are particularly rich in such monuments, would result in a large portion of the city being comprised within the protected zones, for the zones would overlap and create a continuous area. Against this they argue that such overlapping would ensure a complete absence of military use of such areas.

Another curious point was the argument that if belligerents did not for military reasons place the signs indicated in the article enemy aviators had no right by reason of their absence to bombard the zone in question if it had been duly determined and notified.

This last proviso seems to put rather a strain on the cation and intelligence of military aviators. How on a Russian, for example, who has been duly notified that he must not bomb St. Paul's and merely knows that it has a round dome is to distinguish it from the Albert Hall, might very well be bombed with great advantage to the local community of Great Britain, is not easily understood.

One of the most lamentable features of the German raids over London was that no bombs were ever dropped either on the Albert Hall or the Albert Memorial, despite the fact that the local authorities were in the habit of keeping Kensington Gore brilliantly illuminated long after every area in London was reduced to Stygian darkness.

However it may be taken that as in the case of most other articles this will be honoured quite as much in breach as in the observance. One imagines that a German and British bombing raid on Moscow would take considerable delight in abolishing the Kremlin, which seems to be the spiritual home of the Muscovite whether under a Czar or a Soviet.—C. G. G.

REFLECTIONS ON THE LYPNE MEETING.

The two-seater light aeroplane competitions have happily ended in a manner much more exciting and interesting than at first looked possible. In the middle of the week it seemed highly probable that nobody would succeed in meeting with all the conditions laid down in the rules. It was not until Thursday that it became certain that all the Air Ministry prizes would be won, but at midday on Saturday it was still a very open question as to where the prize money would fall.

Raynham's remarkable efforts during the last few days of the meeting, and his failure by some fifteen minutes to carry off the first prize, deserves to be remembered as one of the most dramatic of sporting efforts in the history of aviation. And incidentally it indicates very clearly the futility for their intended purpose of the complicated and involved rules which were drawn up for the contest.

If the system of marking which was adopted is accepted as giving a real measure of the merits of the competing machines, Raynham's Cygnet was a better embryo training machine than either of those which actually complied with all the regulations.

And yet the fact that one of the rocker arms of his engine had a serious internal flaw which could not have been discovered by anything short of X-ray examination sufficed to put him out of the contest. Of course, the rule that high speed should be measured as the average over two consecutive sets of five laps was intended to secure that the measured speed should be one which the machine could maintain for a reasonably long period without oversteering its engine. But in fact Raynham's broken rocker arm does not show that he was oversteering his engine any more convincingly than does the survival of Piercy's big-end to nearly the end of the second attempt at the high-speed test.

THE FUTILITY OF COMPLEX RULES.

The fact of the matter is, of course, that the more complicated and apparently complete the rules in a contest of this sort become, the more completely do they fail of their purpose. The designer of a competing aircraft cannot be expected to take any undue account of the intentions which were present in the minds of those who made the rules. His business to win under those rules, and generally speaking he knows very much better, than the rule-makers how best the rules may be fulfilled.

It may here be said that, on the whole, the majority of the machines at Lypne this year were actually designed with some regard to the expressed intention of the contest—that of producing a training machine—and that taken over all the results have been extremely promising. The winning machine is perhaps a little too cramped for room in its cockpits, and the view from the after seat is possibly not ideal for elementary teaching work, but this is to be regarded only as a perfectly legitimate advantage taken by Mr. Shackleton of a *lacuna* in the regulations. In every other respect the machine is excellent. It has a large speed range, a quick get-off, a very steep and rapid initial climb, handles excellently, and should be almost impossible to turn over on landing.

The Bristol Brownie is a little slower at both ends, which is, on the whole, no serious disadvantage, and is probably superior in regard to both roominess and landing view from both seats. On the whole one imagines that the steel structure would handicap it as a training or sporting type, both on the score of initial cost and in regard to the cost of repair, and so forth—which again shows that the designer used the rules intelligently and neglected points whereon they were silent. And one might illustrate the point further with the aid of nearly every other competing type.

In this matter the competition should serve as a warning

not only to the Royal Aero Club in framing the rules for further contests, but also to the Air Ministry in the matter of framing specifications for experimental Service type aircraft. The more complicated the requirements put before the designer, the more certain it is that the designer will find methods of complying with the letter of the specifications to the detriment of the real objects which influenced him who drew it up. After all the designer who does not know more about aircraft design than does the Air Ministry ceases to design and looks for a job in the Technical Department.

A LOST OPPORTUNITY.

Another instance of the futility of these complicated regulations with numerous hard and fast rules is to be found in the fact that half the machines entered were eliminated before the tests proper were begun, and in consequence neither the Air Ministry, the Aero Club, or the public generally had data at all as to the performance of these machines. One of them was an interesting experimental type and certainly some of them had performances which would have entitled them to an aggregate of marks not far removed from those of the winning machines had their engines enabled them to compete.

These entries were washed out by rules framed in complete ignorance of the conditions which actually marked the contest. Yet had these machines not been eliminated, officials of the meeting could not have observed them in specified tests unless the competition had been extended at least a fortnight, and not then unless the weather had remained favourable. Regarded from this point of view, the competition rules have led to a very great waste of opportunity by ruling out of the tests a number of extremely promising machines, which under more elastic rules might easily have been tested for their suitability as training machines—to the profit of everybody concerned.

ENGINES AND ENGINE LIMITATION.

It has been very generally held that the primary fault in the rules was the setting of the limit of engine capacity as low as 1,100 c.c. There is a good deal of reason for this view, but on the whole it may be regarded as not altogether regrettable that larger engines were not permitted to compete, as the actual performances attained in the competition were much better than had been expected, and there is no reason to suppose that under the rules actually enforced any 1,100 c.c. engine would have done better than the 1,100 c.c. engine actually performed. The competitors would undoubtedly run the larger engines just about as close up to their maximum possible output as they have the smaller ones. Engine failure would have been as frequent, the performances attained would have been a bit better-looking on paper, but it is doubtful whether the machines themselves would have been of so high an average quality. The competition has shown that a light two-seater can be produced which will be practically as good for sporting and training purposes when equipped with an engine developing the same h.p. as that which would be forced out of an 1,100 c.c. engine. And on the general performance of the Bristol Cherub one feels inclined to think that given another 12 months for development, an engine of this capacity can be developed to compare quite favourably with the majority of large aero-engines in the matter of reliability even when worked as hard as were the engines at Lypne.

But one is far from believing in the future of the 1,100 c.c. or even the 1,500 c.c. engine. The 750 c.c. limit was set for last year's single-seater, because existing motor engines were the only possible ones available, and the 1,100 c.c. capacity rating was standard for this type. The limit



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case had no ill-effects, because the contest rules did nothing to encourage running engines at full power. In fact the fuel consumption contest practically ensured that a competitor whose engine was at the limit of its output had no chance.

The essential feature of the practicable light aeroplane is that it should be small, light and cheap, and require only a moderate engine power to fly it. Provided it complies with these requisites it really does not matter whether it has an engine of 400 c.c. or of 4 litres. Frankly one is fairly firmly convinced that if the light aeroplane is to be of any use at all it must be fitted with an engine having a large bore and stroke, a low compression ratio, and running at a low speed. There is no reason why such an engine should not be built for very little more weight, and probably for less cost than the present high-duty type. Personally for a two-seater one would choose if it were possible a 2,000 c.c. engine developing about 40 h.p. at 1,700 or 1,800 r.p.m.

Such an engine should be capable of continued service with as little attention as one now has to give to a good American car engine of the "soft" type—say one top overhaul in 500 hours' running without fear that its power would fall off to

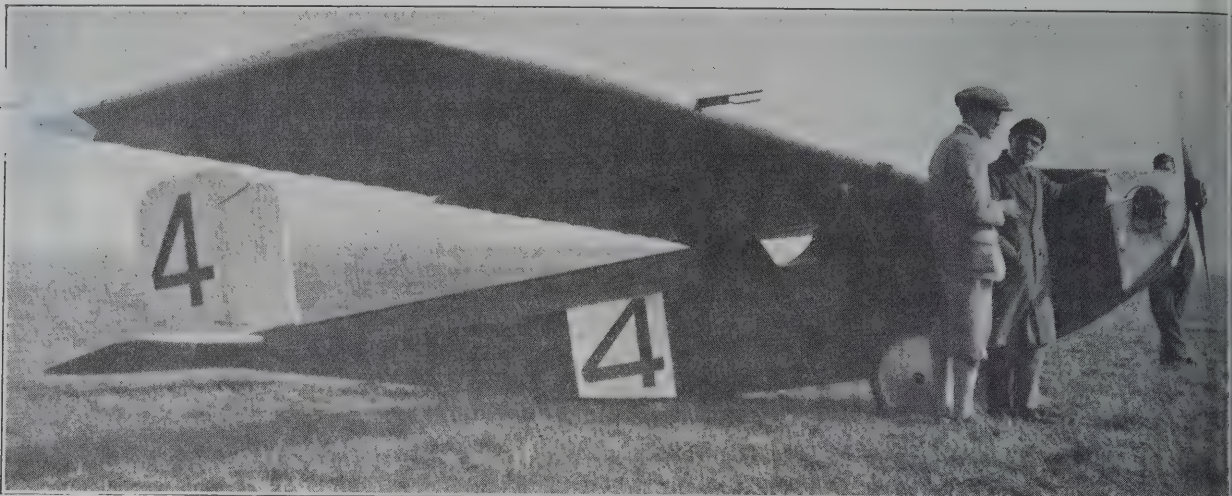
any noticeable extent in the interval. The petrol consumption of such an engine would be slightly inferior to that of a high-compression, high-speed, box of tricks of equal power, but petrol costs little as compared with repairs, maintenance and overhaul.

But obviously no such engine will ever be produced, and a cylinder-capacity rating, and therefore some alternative, must be found.

The obvious rating for light aeroplanes is that of weight and a limit of, say, 600 lbs. for the single-seater and 1,000 for the two-seater fully loaded with, say, three hours' fuel and oil at full power, would probably meet the case. The weight limit automatically governs the engine power used, because the fuel weight which must be carried will be with the engine output, and the designer who pushes a 2,000 c.c. engine up to, say, 75 h.p. would find that the added weight of fuel and the structure to carry it leaveth with relatively little or no advantage in performance that attainable with 40 h.p.

A fuel-consumption limit might also be imposed and very effectively put a stop to the use of really big-power engines in alleged light aeroplanes.

THE LYPNE MEETING.



The Winners.—The Beardmore Wee Bee, with Mr. Shackleton, the designer, and Mr. Piercey, the pilot.

Tuesday, Sept. 30.—Tuesday morning looked very unpromising. Low rain clouds and a brisk wind did not promise much in the way of fine weather. Nevertheless, by 10 o'clock a number of machines were being prepared for flying and were taken over to the northern side of the aerodrome. Flt. Lt. Haig on the Parnall Pixie III No. 18, was the first away, and some few minutes later Mr. Maurice Piercey on the Beardmore Wee Bee took off and started lapping. About 10.30 Bert Hinkler brought out the Avis and decided to get into the air to test the modifications to the engine mounting and airscrew carried out during the first few days of the meeting in drastic endeavours to cure the violent vibration and increase the "revs." Hinkler taxied out a little way onto the aerodrome, turned into wind, and then proceeded to crawl along the ground at what looked like about 20 m.p.h. In spite of this as soon as the engine was opened out the tail flicked up and the undercarriage started to get taller until after running about 100 yards the machine left the ground and started to climb somewhat after the manner of an Otis elevator. Hinkler continued to climb and manoeuvre over the aerodrome until he passed through the low clouds, and only occasional glimpses of him were seen.

In the meantime Flt. Lt. Haig on the Pixie III had returned and Sq. Ldr. Douglas had taken off on the second Pixie III but he did not go right round the course. About midday Hinkler was seen to be coming down to land and after one or two circuits he reversed his method of take off and sat down practically stationary on his wheels and tail-skid. He had been up to 4,000 feet and while at that altitude had heard a bang. On landing it was found that one of the engine holding-down bolts had failed, so the Avis was wheeled back into the hangar and denuded of its engine, a condition in which one saw the Avis all too frequently. However, it kept the Vickers Vagabond company, being parked next to it. Both the Avro and the Vickers had had more than their share of bad luck. Sq. Ldr. Payn and the doughty Mr. Wyatt were working like niggers on the Vagabond installing a new engine mounting which looked sufficiently strong to take a Jupiter, and to make doubly sure a separate mounting

for the carburettor was designed on the spot with the aid of a 12-inch rule and bits of paper, and a workshop in the nearest village was found where it could be made. The occasional violent oscillations between the aerodrome and the village without any effect on the enthusiasm of the V. crew.

Sq. Ldr. Longton, on the Hawker Cygnet I No. 1, was away at about 11.30 a.m. and began lapping but later it was learnt that he had been forced to land on the ridge to a split petrol tank. He got down safely in a small field and telephoned through for a spare tank to be sent. This was done and the new tank was installed. In the meantime the wind had changed, which necessitated a change of direction. The Hawker got off easily and flew back to the aerodrome. Mr. Raynham, on Hawker Cygnet II No. 15, also took part in some lapping but engine trouble forced him to stop on conclusion of one lap. A faulty ball-race necessitated the fitting of a new engine.

Mr. Uwins on the Bristol Brownie No. 1 made several attempts to put in some lap time and on the second attempt got going well and put in eight laps. Both the Parnall and the Brownie got away again just before lunch and completed their lap flying side by side, but later both experienced misfortune. Flt. Lt. Haig's Cherub engine broke a connecting rod which came through the crankcase, and Sq. Ldr. Douglas's Blackburne seized one of its cylinders. The former accepted Flt. Lt. Haig definitely out of the competition as he had no spare engine of the geared variety to substitute for the broken engine, but in the case of the second Pixie the offending parts could be renewed and Sq. Ldr. Douglas was able to start afresh. Pixie No. 18 was brought in after being erected as a monoplane and Mr. Haig, assisted by Mr. Uwins, began to remove the broken engine with a view to putting in an ordinary ungeared Cherub in preparation for the Grosvenor Cup Race.

About 12.30 p.m. the Cranwell biplane No. 3 got away and started lapping, while shortly before 1 p.m. Mr. Piercey landed after having completed nine laps, and a broken spring was replaced.

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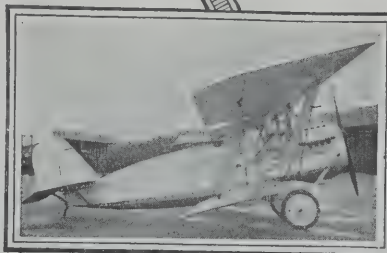
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After lunch a steady drizzle set in, and but for the steady lapping of Mr. Uwins on the Bristol Brownie No. 1, Sq. Ldr. Longton on the Hawker Cygnet I No. 14 and Flt. Lt. Comper on the Cranwell L.A.C.2 No. 3, there was little to attract one into the open.

Wednesday Oct. 1.—On Wednesday morning the weather turned out fine with a cloudless sky and practically no wind at all. The first machine off the ground was the Supermarine Sparrow, which went up to 2,000 feet piloted by Mr. Biard and came down in a steep spiral making a perfect landing.

The first item of the official programme was the slow speed test. For this purpose a course 500 yards long by 25 yards wide had been marked out on the aerodrome on a line between Lympe Village and the furthest turning point. After the course had been marked out it was seen that the Lympe end of it was very much too near the trees and a machine coming along it at stalling speed would have very great difficulty in regaining its full speed in time to clear the trees and so much time was wasted in moving the whole course a 100 yards or so further away from Lympe.

The first off was Mr. Uwins on the Bristol Brownie. He got off the ground well and made a circuit and did what was the opposite of a speed machine diving on a speed course. He hovered about the course at the slowest possible speed at about 10 feet from the ground with his Cherub throttled well down and went down the aisle. The task which was set to pilots was to keep their machines from falling out of the sky at the very lowest possible speed and very much amusement and an equal amount of interest was obtained from their



Mr. Uwins opens the slow speed course on Wednesday.

couple of good runs down the course his wheels just skimmed the ground which necessitated starting again later.

Then came the Cranwell machine. Although excellent in many ways the Cranwell is quite naturally not so dynamically efficient as the other machines designed with the experience of old-established aircraft firms behind it. It made one dash down the course and from the rough of this one run it appeared that its slow speed was two or three times as fast as its high speed round the 12-mile course. This somewhat paradoxical result caused much amusement. On getting to the end of the course further from Lympe Village, the machine had great difficulty in surmounting the fence at the bottom of the aerodrome to the fact that it was almost on stalling speed and flying down wind and the wind had rather a down the up lift about it owing to the topography. It disappeared a few feet off the ground in Mr. Biard's field, and flew back later undamaged.

While three machines were lined up together for the first of this slow flying Mr. Rogers arrived at the aerodrome on his W.8b and it was noticed that the wing spread of the machine completely covered the three waiting machines as it flew low over them to land.

Mr. Piercey also had a try at the slow test and though one of his attempts he touched the ground, at the end of the day his official figure was 40.67 m.p.h. His machine appeared to be the most controllable of all.

Sq. Ldr. Douglas on the Pixie made a very good attempt and looked very much slower than anyone else. On his fourth run going in the direction of Lympe his machine appeared to be below 30 m.p.h., but he fell out of the air swinging round, and, seeing a red flag on the top of the course, he pushed it over with his wing tip. Whether this was due to dislike of the Socialist emblem or not one does not know. He damaged the leading edge of his right wing and took it to the shed for repairs which were effected in about an hour.

Mr. Raynham also put up some very good slow flying with the exception of the Cranwell machine all pilots took several attempts. This competition went on until about 4 o'clock.



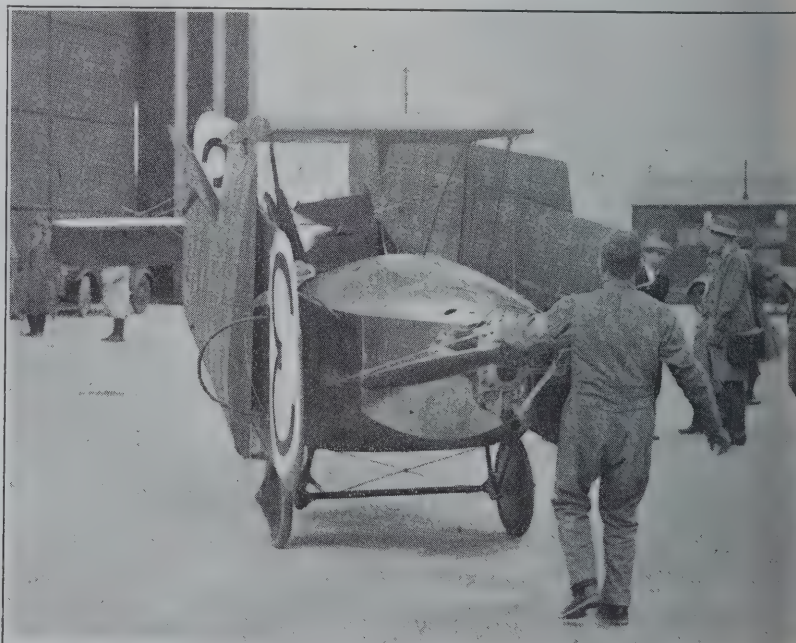
Sq. Ldr. Douglas on Pixie III also essays slow flying.

efforts. At first sight it seemed to be very dangerous and one got into very serious trouble from Mrs. Sholto Douglas for saying so in the presence of herself, Mrs. Raynham and Mrs. Longton, all of whose husbands were involved. Mr. Uwins managed to bring his speed down to 41.24 m.p.h.

After him came Mr. Longton who tried to spin out his time over the course by indulging in crazy flying. After a

THE BEGINNING OF THEIR LABOURS.—The Cranwell Club put their machine through the Transport test. Flt. Lt. Pack, who was responsible for rigging and so forth, is in the forefront of the picture. On the extreme right, with hands in pockets, is Flt. Lt. N. Comper, who flew the machine throughout the competitions, aggregating nearly 18 hours' flying and thereby securing the reliability prizes offered by the Motor and Cycle Trades' Association.

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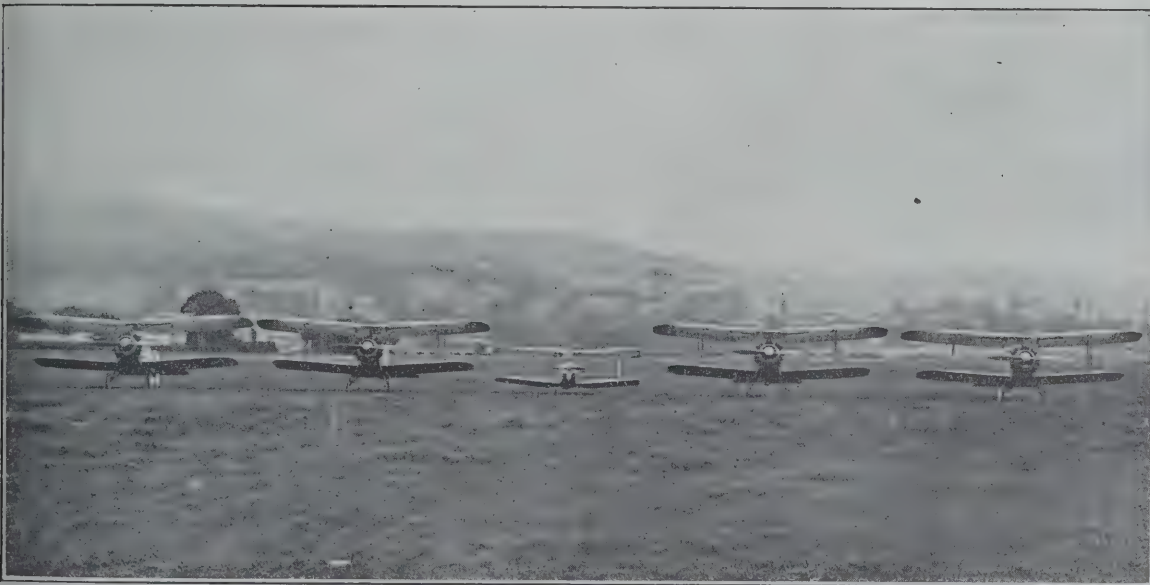
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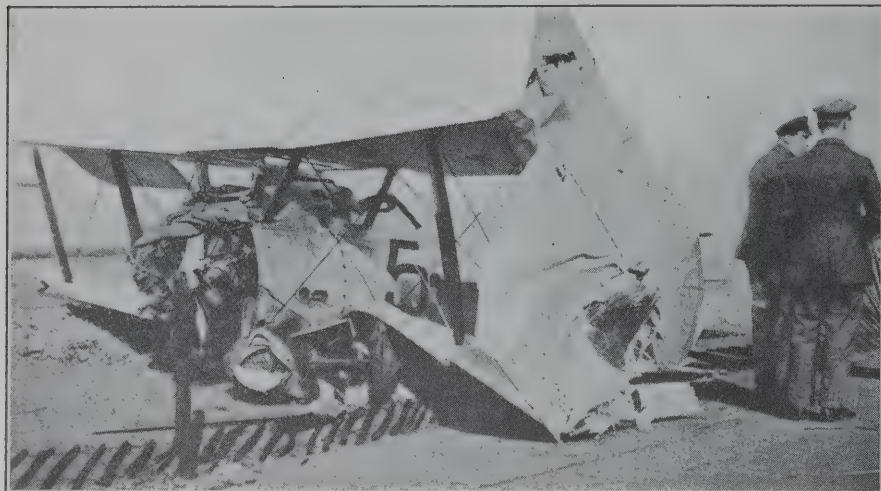
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CUP RACE, 1923.

GOTHENBURG TRIALS : FASTEST TIME FROM
ROTTERDAM.

Illustrated catalogue on Application.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



At 2.30 p.m. the race for the Air League Challenge Cup was due. About 2 p.m. a formation of three Snipe appeared over the aerodrome and landed safely. These were to be used as spare machines. Soon after this the three formations of the competing squadrons arrived led by Air Commodore Samson on an Armstrong-Whitworth Siskin. This arrival provided the thrill of the day.

No. 32 Squadron formation tried to land right up at the Lympne Village end of the aerodrome. They touched the ground about 300 yards from the road and it was obvious to everyone that there was not room to pull up. Consequently they opened up their engines again and the leader and right-hand man, succeeded in clearing the telegraph wires and the trees at the end of the road. The left-hand machine, flown by Plt. Off. Broadway, was not so fortunate. Seeing that he could not clear a house he made a sharp turn to the left travelling at a speed which must have been very close on his stalling speed. The machine fell onto its left wing and with its right wing hit the telegraph wires and fell flat onto its fuselage parallel with the road and facing the sheds. Mr. Broadway, who was involved in the crash at Wembley recently, was fortunately quite unhurt and got into another machine and took part in the race, a description of which will be found elsewhere.

After the race was over the light aeroplane competition was restarted with the first round of the sticking and unsticking competition. While this was going on Plt. Lt. W. E. G. Mann, D.F.C., more usually known as "Pedro," and late of the Central Flying School and now of the famous No. 25 Squadron, leapt into the air on a Snipe and gave the most astonishing exhibition of stunt flying which one has ever been privileged to see. He started by a series of gigantic loops which started and finished within a few feet of the ground and the diameter of which must have been 700 or 800 feet. After this he performed some of the most perfect slow rolls and other evolutions and finished up with a curious form of sideways flying round about the sheds and enclosures. On landing he was greeted with the greatest enthusiasm from the large crowd which had assembled. In fact his was the biggest ovation of the week, and rightly so, for this undoubtedly was by far the finest performance seen and was alone worth going to Lympne to watch.

It was 5 o'clock before the sticking and unsticking was going properly. An imaginary barrier of two poles 25 feet high and about 25 feet apart was erected and Air Commodore Halahan was placed on top of a ladder of the same height and in such a position that he could sight along the tops of the poles. The machines started at a distance of 450 yards

THE CRASH COMPREHENSIVELY

Plt. Off. Broadway's Snipe after firing with the telephone wires and aerodrome fence on Wednesday afternoon. This photograph gives an excellent idea of how completely the machine may be deleted without injury to the occupants if the main impact is taken on the wing tips.

from this imaginary obstacle and had to climb clear of the fact that any machine had passed over the barrier signalled by the waving of a red flag which again was a Socialist emblem, by Air Commodore Halahan. Machines were awarded for each yard nearer to the barrier than 450 yards. The landings were made over a tape 6 feet high and the distance from the centre of the tape to the farthest point on the arrested machine was measured. The best take-off was by Mr. Piercey, on the Beardmore, who got over the barrier after running 250 yards, and Mr. Longton was first in the landing competition, running only 83 yards from the barrier.

During this time Plt. Lt. Haig took up the Parnall P.1 which had been shorn of its top plane and carried out a number of loops and rolls and closed the flying for the day with the first exhibition of stunting on a two-seater light aeroplane.

Thursday, Oct. 2.—The weather experts' predictions of atmospheric cataclysms continue to hold as the best weather joss. Blue sky, sunshine and no wind worth mentioning, and at least for the earlier part of the day a temperature more like that of a real summer than has been for a long time. In spite of the decision to open flying at 8.0 instead of 10.0 o'clock, there was not even a morning mist, and four minutes past the hour Raynham took off on an A.B.C. Hawker for his high-speed test, followed by Longton seven minutes later.

Longton did not keep going long for his magneto stopped down and he landed near King's Norton, from whence he flew back in the middle of the afternoon after having overhauled and replaced the offending member.

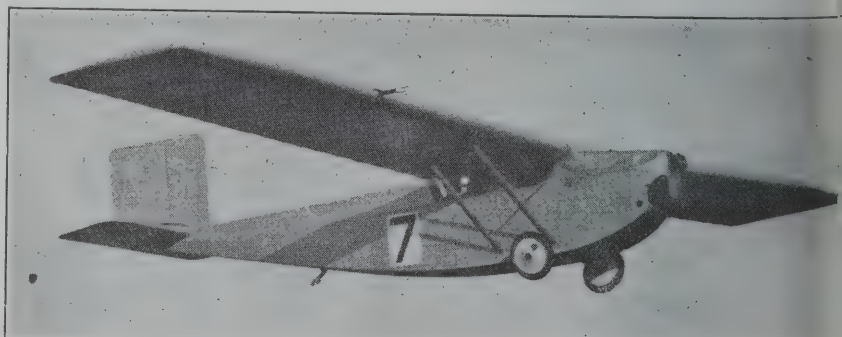
Raynham made his first five laps on the high-speed test at a little over 65 m.p.h. He then started for the second five laps, but, to everybody's regret, turned into the aerodrome and landed after completing four. It was found that the rocker-arm brackets of both cylinders had bent back, and became necessary to fit new heads to both cylinders. This being a replacement outside the permitted schedule meant that all his previous efforts were washed out and that he had to start on the competition right away from the beginning. As usual Raynham was about the only person to seem undisturbed by his bad luck, and within less than an hour he was putting in laps towards his ten hours.

Plt. Lt. Comper continued lapping with an eye on the S.M.M.T. reliability prize with such persistence and success that he passed the ten-hour minimum during the afternoon.

Piercey, with the leading place in marks, and Uwings close-up second, lapped towards their ten hours with monotonous regularity, until Uwings, troubled by a slight

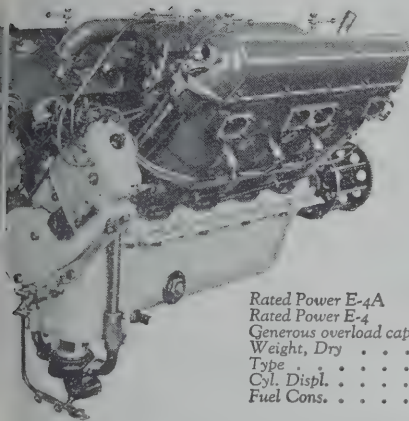
ONE OF THE ELIMINATED.—Mr.

James gets the Anzani-engined A.N.E.C. going with a new airscrew, and shows the consistently good qualities of Mr. Shackleton's design.



WRIGHT ENGINES

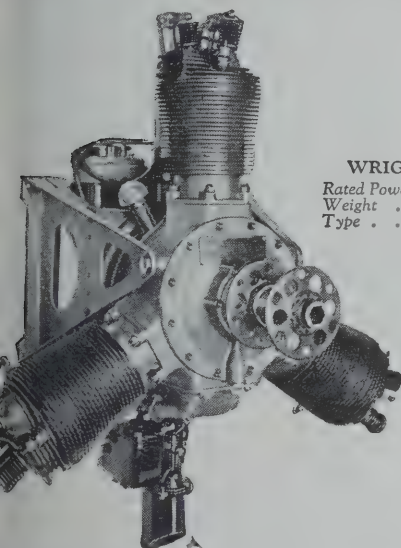
A DEPENDABLE ENGINE FOR EVERY TYPE OF PLANE



WRIGHT E-4 and E-4A
 Rated Power E-4A 240 H.P. at 2100 r.p.m.
 Rated Power E-4 200 H.P. at 1800 r.p.m.
 Generous overload capacity above rated powers
 Weight, Dry 480 lbs.
 Type 8-cyl., 90° Vee
 Cyl. Displ. 718 cu. in.
 Fuel Cons. 48 lbs. per H.P. hr.

250 HOUR DURATION TEST

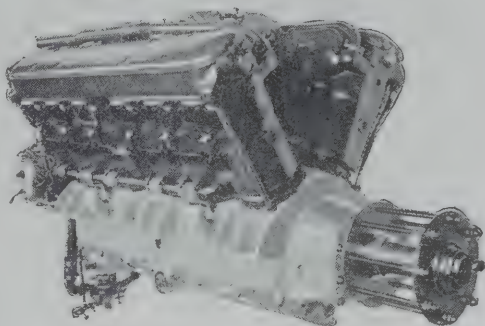
E-4 was recently tested by the U. S. Govt. for 250 hours at full throttle at 200 H. P. and 1800 revs. It gained power during this run. The dependability is due to 7 years' development on this size and type. E-4 is the sixth yearly production model and the E-4A the seventh.



WRIGHT L-4—60 H.P.
 Rated Power, 60 H.P. at 1800 r.p.m.
 Weight 175 lbs.
 Type 3-cyl., air cooled

L-4, a dependable 60 H.P., lightweight engine. A very even torque is developed. It has been flown on hard tests with the spark plugs removed on one cylinder. Low in cost, it is available for small commercial planes as well as messenger, shipboard and submarine planes.

WRIGHT T-3—650 H.P.
 Rated 650 H.P. at 2000 r.p.m.
 Power 550 H.P. at 1800 r.p.m.
 Generous overload capacity above rated powers
 Weight, Dry 1160 lbs.
 Type 12 cyl., 60° Vee
 Cyl. Displ. 1947 cu. in.
 Fuel Cons. 45 to .5 lbs. per H.P. hr.
 Length 55 3-16" Width 30 7-8" Height 26 1-4"

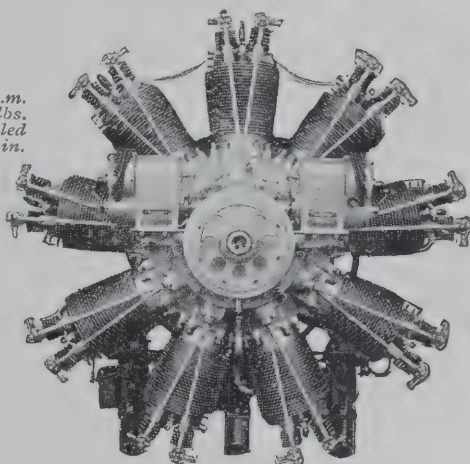


HIGH POWER

The T-3 was developed for heavy duty in bombing, torpedo and long distance planes. The weight being only 1160 pounds and the overall sizes so compact, it has been found possible to replace lower powered engines in many types of planes. Improved performance results, without loss of radius. Engineers should check the improved performance obtainable with the T-3.

WRIGHT J-3 220 H.P.

Rated Power 220 H.P. at 1800 r.p.m.
 Weight 442 lbs.
 Type, 9-cyl., air cooled
 Cyl. Displ. 787 cu. in.



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The J-3 is for use in training planes, shipboard planes, seaplanes and small observation planes. Simplicity, lightweight and ruggedness make this a world's leader for 220 H.P.

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H-3 Superfighter, 400 H. P. (Hispano Type). Weight 620 pounds, 8-cylinder, 90° Vee Water Cooled, 1126 cubic inches. F. A. I. world's speed record 500 km. at 164 miles per hour.

THE above five types of engines are all in production and no experimental types are included. Our plant is tooled up to make prompt deliveries on large or small quantities and a few of some types are in stock for immediate shipment. The prices are compatible with new aviation engines built in any other country.

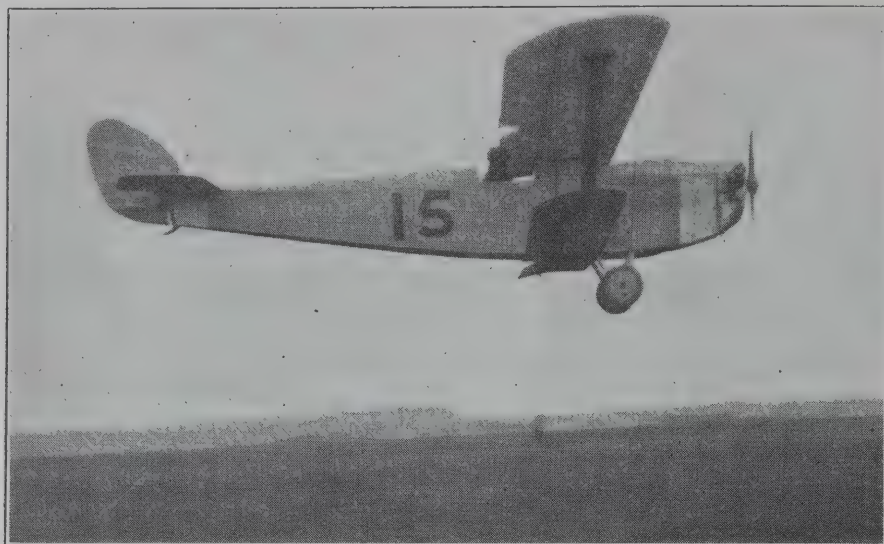
Our Corporation also designs, builds and operates planes. A large staff is employed in cooperating with civil and military airplane designers, manufacturers and operators to incorporate promptly in our engines the recommendations made from flying experience. Enquiries from military, naval and civil sources are solicited.



WRIGHT AERONAUTICAL CORPORATION

PATERSON, NEW JERSEY, U.S.A.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



Mr. Raynham—whose proverbial ill-fortune followed him once more—flying the slow speed course on Thursday can be seen in the photograph the wing flaps are well down and his wings well up, although at the time the photograph was taken his air speed was about 37 m.p.h.

miss, came in to rectify it. He found the landing and getting-off courses marked out and the conditions ideal, so interrupted his lapping to try and improve his previous figures. The Pixie and Raynham's Hawker also took these tests and then Uwins, Raynham and Douglas took the slow-speed test.

The weather was this time absolutely ideal there being a wind of only 1 or 2 m.p.h. and the slow speeds recorded were very close indeed to the stalling speed. Uwins, by getting his slow speed down to a little over 37 m.p.h. instead of the earlier 41, so increased his speed-range percentage that he now led Piercey on marks. Piercey however did not intend to be lured into taking any risks before completing his qualifying 10 hours, to avoid which he put in 22 laps in the course of the day, leaving him a little under 1½ hours to complete on Friday and Saturday. As he had only to drop his low speed by about 1 m.p.h. or put his top speed up by 2 m.p.h., he had still a very good chance of regaining the first place, provided no engine trouble intervenes.

Winstanley on the Westland biplane compiled laps, and Longton, thanks to Mrs. Longton's efficient services as transport officer, got back from his field in time to put in several more laps. His magneto however was not all that it might have been and accordingly the engine was removed and a new magneto was fitted, work starting a little before six. The real cause of his trouble appears to have been oil leakage into the magneto, and steps were taken to remedy this and at the same time the opportunity of thoroughly inspecting the engine was used.

Payn on the Vickers Vagabond, Haig on the Parnall Pixie monoplane, and James on the A.N.E.C., found for themselves opportunities of exhibiting the flying capacities of some of the eliminated. The new engine mounting of the geared Cherub on the Vagabond seems to have overcome the vibration trouble with success, and the machine undoubtedly flies and handles excellently. The Avro crew were hard at work installing the ungeared Cherub to replace their original geared engine, but were not able to finish the job during the day. Sundry Service and commercial aeroplanes—including a flight of three Walrus and one Dart—demonstrated that other than light aeroplanes do use the air with fair regularity, and just about 6.0, as it was growing dark, Flt. Lt. Bulman made an emotioning arrival on the R.A.E. Hurricane, which is now fitted with a Cherub engine and a somewhat more conventional type of undercarriage. He had flown from Farnborough in order to take part in the Grosvenor Cup race on Saturday.

Altogether a thoroughly good, if not a particularly exciting, day's flying.



Mr. Uwins on the Brownie does more slow flying.



Sq. Ldr. Douglas' Pixie just over the get-off barrier. of the 25-foot posts may be seen on the left.

Friday, Oct. 3.—The abnormally favourable weather holds—to-day is even more summer-like than yesterday, the wind nothing that could worry anybody at any test. Longton began at 8 o'clock again and Raynham and Longton away quickly. Longton did five laps at well over the required 60, despite the fact that he is still treating his engine with some considerable tenderness. He landed, took off, and into the aerodrome after two more, with a broken valve. He replaced, started, and forced-landed just round the second turning point with another broken valve, replaced that, took off the field, and just got back to Lympne with a third valve broken. Apparently Raynham's ill-luck has transferred itself to his team-mate for to-day, for Raynham on the whole has got through to-day excellently, having made his tenth time up to eight hours during the day, counting from the restart yesterday at lunch time.

Longton has now flown 15 complete laps all at a speed of over the 60 m.p.h. without however complying with the speed test rules—which call for ten consecutive laps in unbroken fives. He successfully attacked the get-off and landing tests fairly late this evening, when the bad weather turned back to Raynham, who imitating Longton's previous effort tried to spin his last lap of the evening out to 6 o'clock. Unfortunately his engine choked on the ground and he failed to cross the finishing line.

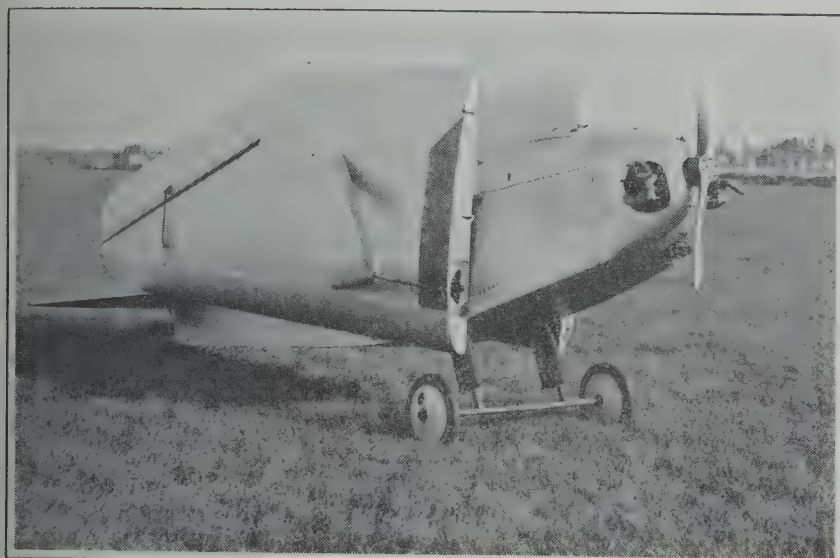
Uwins and Piercey both got away fairly early, and both completed her compulsory 10-hours' flying within half an hour or so of the same time—actually about 11 a.m. This was now certain that the Air Ministry would have to disgorge its £3,000 of prize money in full—whereat everybody was somewhat cheered—for at one time it did look as though the requirements in the way of rules would not only wash

PARNALL PIXIE

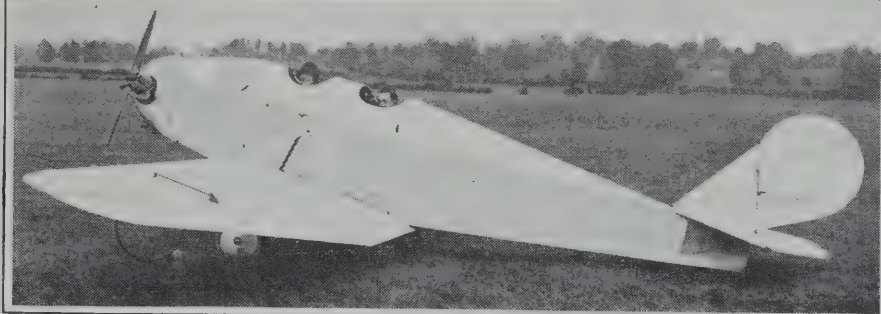
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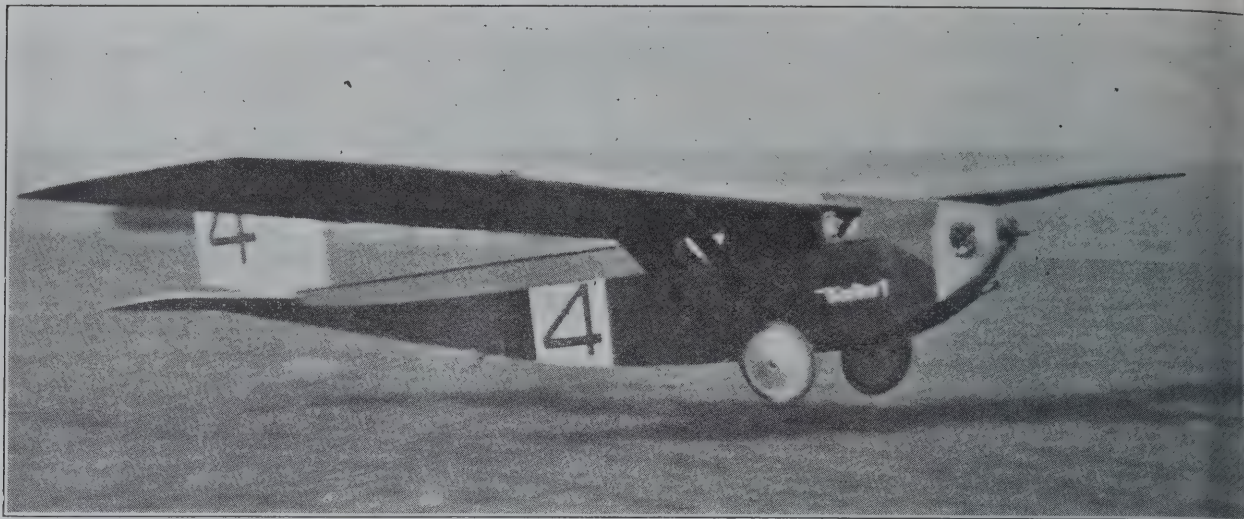
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



THE START OF THE DECIDING FLIGHT.—Mr. Piercey taking off for his low-speed test on Friday. The result was sufficiently good to regain the lead in marks, which he kept to the end.

every machine which had any good points, but would allow them to keep their cash and let the light aeroplanes go.

Flt. Lt. Comper also got away early, but his engine—for the first time—let him down on one of his first laps. The trouble was no more serious than valves leaking, but meant practically the waste of the whole of a perfect flying morning. Although the Cranwell machine had then and still has the largest number of hours' flying to its credit, it was some 15 laps behind Piercey in distance, and it is distance which counts towards the Motor Traders' reliability prize. The delay robbed them of some six laps or so towards this deficit, and they will have their work cut out to put in the required total before 2 o'clock to-morrow. Everyone will be extremely sorry if they fail to pull off this prize, for they have done extremely well, the whole team have worked their hardest and best, and they thoroughly deserve to win something worth winning.

Round about 3 o'clock Piercey attacked the slow-speed course in the hope of bettering his original figure of 40 m.p.h. His times were sufficiently good to have put him above Uwins again, but he touched ground on the last run owing to trouble with getting his engine to run steadily at the speed he required. After some adjustment of throttle controls and the retarding of his magneto, he tried again. He still found it impossible to run his engine at anything between nearly all out and practically dead, but by alternate bursts of vigour and quiescence he succeeded in averaging 39.6 m.p.h.—which put him above Uwins in the matter of marks.

Uwins thereupon tried again for low speed, but failed to

equal his previous best, and decided to see whether he could not get the required 13 marks by improving his take-off and his landing. Piercey however decided to do the same as he got at it before Uwins. He succeeded in getting 20 yards, off his landing, to which Uwins only succeeded in answering with seven yards, and Piercey shortly afterwards made a few more marks on the "get-off," so that now Uwins does something altogether phenomenal in the way of top speed to-morrow morning, Piercey seems to be a certain winner of the first prize, unless, of course, Raynham Longton pull off their forlorn hopes to-morrow morning any rate they are certain triers.

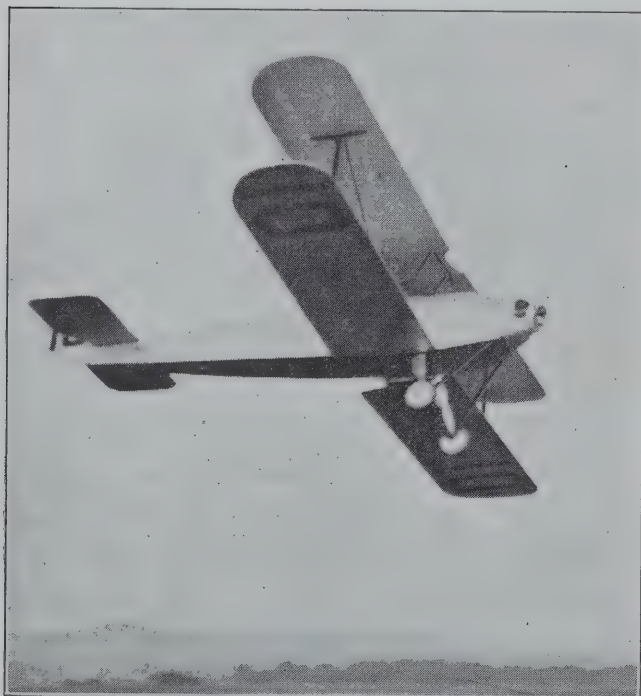
Winstanley on the Westland Wood Pigeon put in a lap, two, which go to his credit for the 10 hours' flying, but it seems no likelihood that he will seriously attempt any of the other tests.

Apart from the competition proper the air above Lynton was distinctly crowded. Bulman's arrival on the Hurricane has already been recorded. Early this morning a second Westland biplane with a Blackburne radial, last year's six-winged Pixie with a 1,000 c.c. Vee-twin Blackburne, and Vickers Viger arrived to take part in the Grosvenor Race. The Avro Avis at last got its new engine installed and was taken up by Mr. Hinkler and thrown about. Its capacity for making an apparently endless succession of loops without losing height is astonishing, and in every way the Avis flies in the most convincing style.

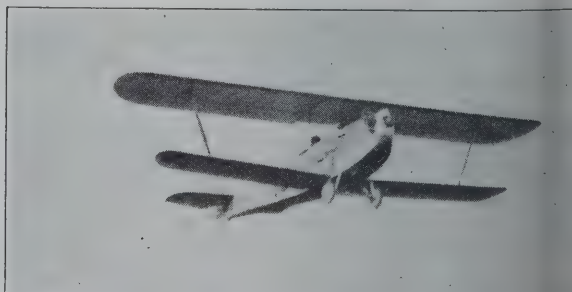
Tea-time towards Mr. Hinkler took up Air Vice-Marshal Geoffrey Salmond, and proceeded to loop, half-roll, and, believes, spin, bearing this dignitary of the Air Ministry. It is only fair to Mr. Hinkler to say that he was in this following an example set to him by Mr. Barnard on the D.H.51, who, carrying equally distinguished freight, is one of the most variegated and finished displays of stunt that one has seen for a long time. And this on a non-worthy machine!

The second Westland took the air about the same time. It seems to have somewhat more reserve power than its sister and is certainly quite fairly fast.

Mr. Courtney essayed his racing Pixie. With her 1,000 engine she looks at least as fast as the Bamel—an eagle caused by her absurdly small over-all dimensions—but it can be no doubt that she is fast—astonishingly so for engine power. After flying round for a few minutes she was seen to descend with what looked like unpremeditated rapidity some way east of the aerodrome.



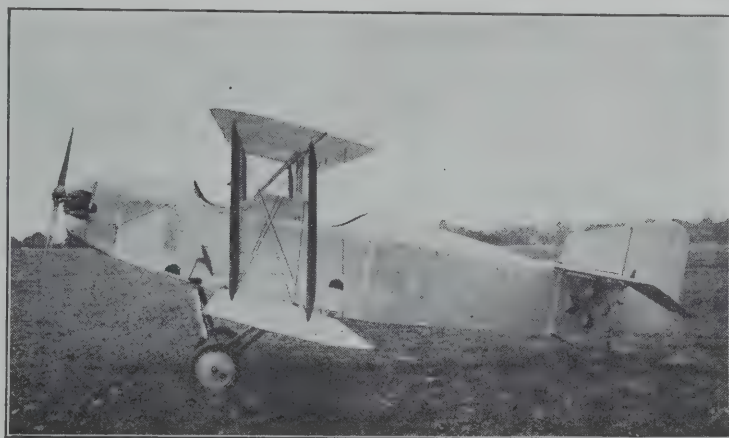
Mr. Hinkler at last gets the Avro Avis flying.



Mr. Raynham on the A.B.C. Hawker putting in lap, Friday.

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On the return of a search party it was announced that machine and pilot were undamaged, the Pixie having merely "lost its prop." It turned out that the phrase had to be interpreted literally—the aircrew having departed forwards and laterally and descended independently of Mr. Courtney and his mount, and that when picked up was somewhat badly charred. Fortunately the only damage other than that to the aircrew was the shearing of the bolts, and another aircrew, on a stiffer boss, was fitted during the night, though the spare stick does not give the machine the same top speed.

Certain other crews put in strenuous nights—to wit, the Cranwell crew, whose engine requires a good deal of nursing if it is to stand up to the additional distance it must fly to collect the reliability prize.

Saturday Oct. 4.—Heavy clouds and very wet rain at the beginning of the morning seemed adequately explained by the weather forecast—which *The Times* summarised as "Mainly fair." Examined in detail the Meteorological Office was found to have hedged in its prophecy, and the weather fortunately did the same and behaved astonishingly well in the afternoon after a morning that from the looker-on's point of view, could only be called foul. Fortunately the clouds kept off the ridge and the course was quite flyable.

Raynham, Longton, Piercey and Comper got away early to lap. Both Longton and Comper came down very quickly, the former with his usual broken valve, and the latter more afflicted by general debility on the part of the engine than by any specific defect. Longton reached the aerodrome, replaced his valve, forced-landed again on the course with a second valve broken, replaced it, and flew back. A third valve went on the way back, but as he was light, having left his ballast to return by road, he flew into the aerodrome on one cylinder.

The Cranwell machine also unloaded and flew back and had sundry palliatives applied for his engine trouble and got away again without very much delay, but had the misfortune to run out of petrol as a result of trying to complete six laps without a stop.

Raynham in the meantime was putting in laps at about 70 m.p.h., which, in conjunction with his low speed, get-off and landing results, was quite good enough to put him into the first place in the contest for the Air Ministry prizes if he could stay the whole ten laps. Piercey, who all the week had been nursing a very dicky big-end, however, was making an attempt to put up his high-speed figure and was lapping at about 79, while Uwins had another attempt at getting off and landing. The excitement was intense, for if Raynham's engine lasted and Piercey's did not, he was certain of first prize, and even if Piercey's stood up also, the result would be in doubt till the figures of both for the complete course were worked out.

Also if Uwins did sufficiently well in his final effort he might very nearly catch Piercey if the latter failed to improve his top speed, and he was fairly certain of taking the Duke of Sutherland's prize for getting off and pulling up unless Raynham finished his speed course and then improved his own unsticking and resticking figures.

Uwins did improve on his previous best, not by enough to beat Piercey's already earned marks, but by sufficient to put him into first place in the getting off and landing tests.

Raynham and Piercey both finished their first five laps and got away for their second effort. They maintained their speed excellently, and as lap succeeded lap the faces of those on the ground who were directly interested in the fortunes of these two and of Uwins betrayed their growing excitement and anxiety. Piercey made his fourth lap, but at the time when he should have appeared between the last turning point and home, no sign of the Wee Bee could be seen. After a few minutes it was obvious that he had landed, and a quarter

of an hour or so later it became known that his big-end at last failed.

Raynham all this time was going round with perfect regularity and no sign of having to nurse his engine. He finished his third lap of the second bunch, and was waiting out to the first mark and along the ridge to the second. Cranwell machine and he were both seen, one above the other, approaching the second turning point together, Raynham in the lead, gaining rapidly. But Raynham did not turn—veered off to the east, and landed, one rocker arm having broken when he had about fifteen miles to fly to take safely through to the first place and a prize of £2,000. The flaw which actually caused the breakage either did not reveal itself within the first half-hour's running, or refused to weight for another fifteen minutes, is one of the things which passes all understanding.

Remembering that he had had to start afresh in the whole series of tests at midday on Thursday, his performance getting so close to success is easily the most remarkable of the meeting.

Interest in the competition was now over, for Cranwell and Raynham now safely put themselves ahead of all their competitors in the matter of distance. To do this they had to fly for over ten times as long as had Piercey, and they had approximately equalled Hinkler's flying time during last year's meeting. Raynham was very considerably more in the way of engine trouble, but everyone who was aware of the inwardness of things was delighted at the success which attended their efforts as they were sorry for Raynham's appalling bad luck.

The Official Results.

The following are the official figures of the performance achieved by the non-eliminated competitors in the course of the tests, together with the marks awarded under the rules:—

Beardmore Wee Bee I: Official No. 4. Pilot M. W. Piercey. High speed 71.11 m.p.h., Low speed 39.66 m.p.h., Speed range 76.77%* (Marks 347.52), Get-off 235 yards (Marks 215), Pull-up 124 yards (Marks 26), Hours flown 11 hrs. 54 mins. 41 secs., Miles flown 737.5. Total marks 588. 1st Air Ministry prize £2,000.

Bristol Brownie: Official No. 1. Pilot C. F. Uwins. High speed 65.19 m.p.h., Low Speed 38.73, Speed range 68.33% (Marks 279.92), Get-off 215 yards (Marks 235), Pull-up 102.6 yards (Marks 47.4), Hours flown 10 hrs. 23 mins. 40 secs., Miles flown 512.5. Total marks 562.32. 2nd Air Ministry prize £1,000, Duke of Sutherland's prize £500 for Get-off and Pull-up.

Hawker Cygnet: Official No. 15. Pilot F. P. Raynham. High speed 37.42 m.p.h., Get-off 250 yards (Marks 200), Pull-up 72.66 yards (Marks 77.33), Hours flown 10 hrs. 29 mins. 15 secs., Miles flown 437.5. Total marks 277.33. Captain C. B. Wilson's prize £100 for Get-off and Pull-up.

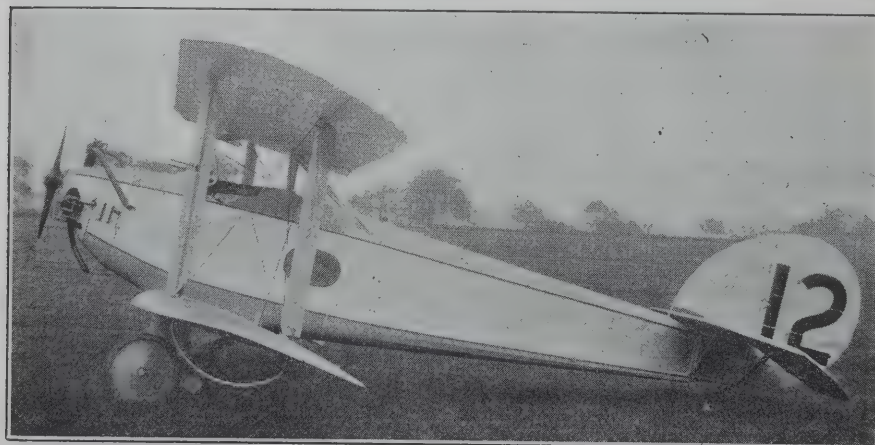
Cranwell C.L.A.2: Official No. 3. Pilot Flt. Lt. Comper. Hours flown 17 hrs. 53 mins. 18 secs., Miles flown 766. S.M.M.T. prize £150 and B.C.M.C.M.T. prize £150 for maximum distance flown.

Hawker Cygnet: Official No. 14. Pilot Sq. Ldr. Longton. Low speed 43.95 m.p.h., Get-off 269 yards (Marks 180), Pull-up 66.7 yards (Marks 83.3), Hours flown 8 hrs. 24 mins. 38 secs., Miles flown 400. Total marks 264.3.

Parnall Pixie III: Official No. 19. Pilot Sq. Ldr. Shorrock. Douglas. Low speed 37.22 m.p.h., Get-off 301 yards (Marks 149), Pull-up 70 yards (Marks 80), Hours flown 10 hrs. 4 mins. 38 secs., Miles flown 450. Total marks 229.

Westland Wood Pigeon: Official No. 5. Pilot S. H. Gaskin. Hours flown 2 hrs. 31 mins. 37 secs., Miles flown 125.

* Speed range % = $\frac{\text{High speed} - \text{low speed}}{\text{low speed}} \times 100$.



ONE OF THE NON-STARTERS.—T

Blackburn Blue Bird which discovered

enough about 1,100 c.c. engine trouble

to prevent its leaving Brough. It

obviously a thoroughly eyeable machine

and it is hoped that it will have

early opportunity of showing its merits



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



The Winning Team (Hawkinge) taking off in the race for the Air League Cup.

The Race for the Air League Challenge Cup.

The race for the Air League Challenge Cup started from Lympne at about 2.45 p.m. on Wednesday, Oct. 1. The race was something of a novelty in that it was not a race for single machines but a race for formations. That is to say that it was won by the formation which made the best time round a course which was only disclosed to the pilots fifteen minutes before the start and which formation at the various turning points kept the best station.

The three squadrons competing were No. 25 (Fighter) Squadron, of Hawkinge, No. 32 (Fighter) Squadron, of Kenley, and No. 56 (Fighter) Squadron, of Biggin Hill. They took off at five-minute intervals, Hawkinge going first, Biggin Hill going second, and Kenley going third. The turning points were a windmill between Brighton and Lewes and a railway bridge at Charing a few miles north-east of Ashford.

About 50 minutes after the start the Kenley formation which had started third appeared, followed by Biggin Hill with Hawkinge some distance behind. The times taken were 46 mins. 28 secs. by Biggin Hill, 50 mins. 44 secs. by Kenley, and 59 mins. 7 secs. by Hawkinge.

The adherents of No. 25 Squadron who knew their squadron's capabilities, at once saw that there was something curious about these times. It was known that Flt. Lt. E. Barnes Mason, who led his formation, knew every landmark in Kent and Sussex off by heart. It is even said that he can go above the clouds, stay above them for any given time, and dive down out of them and at once recognise where he is. Therefore it seemed likely that No. 25 Squadron would not steer a false course. This turned out to be the case and it was shortly ascertained that Biggin Hill and Kenley had not passed the two turning points and so the cup was awarded to Hawkinge.

Sir Sefton Brancker on behalf of himself and Mr. Phillip Foster, the joint donors, then presented the cup to Flt. Lt. Barnes Mason, Flt. Lt. "Pedro" Mann, and Flt. Lt. C. R. Keary, amid tremendous enthusiasm.

Sir Sefton Brancker, with his usual clever anticipation, said that he expected that if the cup was won for the next two years running by No. 25 Squadron it would become their property and he would have to give another cup.

There is no doubt whatever that the cup has fallen into

good hands and hands which know what to do with it. No. 25 Squadron during the war were a very famous squadron indeed. When it was equipped with F.E.2bs it was responsible for despatching the famous Immelmann. Its personnel have all seen war service, and the squadron on the good old pre-war Army principle.

On the following evening after the race the squadron had a dinner to celebrate the winning of the cup, which was undoubtedly one of the greatest successes of the war period.

The Grosvenor Cup Race.

The final event of the week was the race for the Grosvenor Cup presented by the Lord Edward Grosvenor, which was won with it a monetary prize of £100. The second prize was presented by Sir Charles Wakefield, Bt.

It had originally been intended to run the race to Margate and back but when it was realised that the intervening country would possibly be littered with forced landings, that the job of salving them might be arduous, it was decided to change the course to eight laps of the Competition Circuit.

The machines were limited to those whose piston displacement was 1,100 c.c. or below. That is to say, all machines designed for this year's competition were eligible as well as those built for last year.

Out of the 14 machines which came to the starting line were those taking part in this year's competitions and 12 of last year's. Last year's machines were the Little Pixie with small wings flown by Mr. Frank Courtney and the Humber with a 1,000 c.c. Blackburne, last year's Humber flown by Mr. Bulman and fitted with a Cherub, the Humber fitted with a three-cylinder Blackburne and flown by Mr. Scholefield, and the D.H.53 with a Blackburne Tom-Tit flown by Mr. Alan J. Cobham.

The 14 machines were all lined up at the village end of the aerodrome facing the first turning point and a wind of 12 m.p.h. was blowing across them. In spite of this every machine took off without incident. The first machine away was the Westland Wood Pigeon flown by Mr. Courtney which had a start of 32 mins. 50 secs., and the scratch machine was Mr. Courtney's Pixie II. The limit machine completed nearly two circuits by the time Mr. Courtney started.

The progress of the race could be watched with ease



THE HOLDERS.—Flt. Lt. E. Barnes Mason the leader of 25 (Fighter) Squadron's formation holding the Air League Challenge Cup after the presentation by Sir Sefton Brancker. Flt. Lt. "Pedro" Mann is on his right and Lt. C. R. Keary on his left.

Mason the leader of 25 (Fighter) Squadron's formation holding the

Squadron's formation holding the

League Challenge Cup after the presentation by Sir Sefton Brancker. Flt.

tation by Sir Sefton Brancker. Flt.

"Pedro" Mann is on his right and

Lt. C. R. Keary on his left.



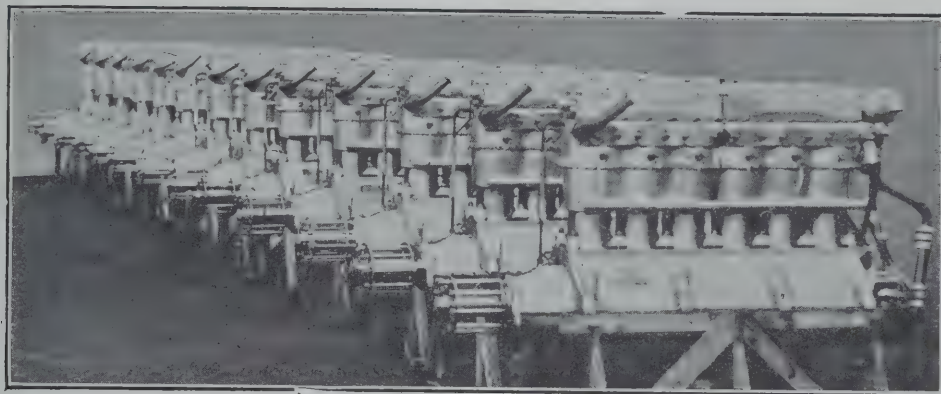
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Left, the Vickers Viget (Blackburne engine) which flew for the Grosvenor Cup. Right, Flt. Lt. Soden's White (Anzani engine) which came to look on.

this undoubtedly makes the best racing course for aeroplanes that has yet been devised. From the moment the first machine was away until the finish there was never a dull moment as machines were coming past the aerodrome at very frequent intervals.

Prior to the race speculation was rife as to the number of machines that would finish and it speaks well for the reliability that was attained by the engines towards the end of the meeting that 9 out of 14 starters finished the course.

The handicapping of the race was a very difficult proposition indeed and Mr. Goodman Crouch is to be congratulated on providing such a good finish. It is said that the night before he dreamed that he was standing at the finishing line and saw the whole lot come past the post in one straight line in the same position as they were before the first machine left the line.

One and a-half hours after the first man left, the winner, Mr. Bert Hinkler, on the Avro with a Bristol Cherub, came past the post followed closely by Mr. Gaskell on the Westland, and the third was Mr. T. W. Campbell on the Bristol. Thus all the first three machines were equipped with Bristol Cherubs. The fourth machine to finish was Mr. Biard on the Supermarine and then Mr. Haig on Pixie III, Mr. Courtney on Pixie II, Mr. Parker on the Short, Mr. Cobham on the D.H.53 and Mr. Winstanley on the second Westland, in that order. None of the machines which forced-landed were damaged in any way. Mr. Longton on his Hawker forced-landed first of all in his usual field but flew back safely to the aerodrome. Altogether it was a very successful race indeed.

The Last of the Flying.

Mr. Longton, who spent the interval between his abandonment of the Grosvenor Cup Race and the finish thereof at his usual pastime of fitting new valves, took his Cygnet up and proceeded to an exhibition of the craziest crazy flying that one has yet seen. The Cygnet light has enormous surplus power—so much that Mr. Longton's only difficulty was to keep from climbing unduly during this exhibition, and the fact that the latter part of his exhibition was even more finished than the opening and the improvement was preceded by strange, irregular noises from the engine, seems to suggest that he could just as well have spared himself the last valve replacement.

Mr. Cobham also exhibited the D.H.53 to very great advantage, giving an exhibition of vertical banks, stalled turns and the like of a very finished order. Mr. Payn looped the Vagabond and otherwise showed the machine's manoeuvrability in a convincing manner, and an Austin Whippet, fitted with a 45 h.p. Anzani, which had been flown down to the meeting by Flt. Lt. F. O. Soden, D.F.C., of Northolt prefaced his departure by a thoroughly lifelike imitation of a modern high-performance single-seater.

Flt. Lt. Mann, despite a sprained ankle, then took the air in his Snipe, and gave an exhibition of stunting. One has seen most of the finest British exponents of this art at their best—there are no better in any other country—but one has never seen anything quite so finished as Mr. Mann's slow loops and rolls. His rolls in particular are astonishing for their smoothness and for the slow dignity with which they are carried out.

After Mr. Mann's descent the official close of the meeting was marked by the discharge of sundry fireworks, and the ascent of bundles of multi-coloured balloons, whereupon the assembled multitude departed, feeling that a really interesting, and in some ways an astonishingly successful, week had been wound up by one of the best day's flying that has been seen at an Aero Club meeting for many a day.

The Giving of Prizes.

On Saturday evening the dining room of the Hotel In at Hythe was reserved for members of the Aero Club, petitors at the meeting, their wives, sweethearts and friends, and dinner was followed by a little speech-making, and a deal of prize-giving.

COL. FRANK MCLEAN in the chair, after calling on those assembled to drink to the health of the King, wasted time in words, but called upon Gen. Sir Sefton Brance to present the King's Cup to Sir Charles Wakefield.

GEN. BRANCKER opened his speech by reading an anonymous postcard which he had received from Croydon, which inquired whether Sir Sefton Brance and Civil Aviation not already had enough headlines in the press and whether it was not time for the said Sir Sefton to close down a Trenchard and Salmond be heard of? The Director-General of Civil Aviation announced his cordial agreement with the sentiments of the writer, and then proceeded with the news in hand.

His Majesty the King, in presenting his cup, had moved by a very real personal interest in flying and recognition of the importance of aviation to the nation, with the hope that it would serve as a means of arousing a really wide public interest in aerial events.

The Royal Aero Club had been the subject of some criticism over the organisation of this year's race in that it had made it a one-day affair, starting very early in the morning at one, and finishing at another, desolate, sparsely-populated spot, and had thus given the public little chance of watching the event at all. On the other hand, however, he thought the results had justified the even

There were quite good reasons underlying the origination of confining the race to seaplanes, but when it came obvious that there were no seaplanes to race, the decision to open the race to both land and seaplanes had British aeroplanes and their pilots the opportunity of putting up a performance which could be compared advantageously with certain extremely fine long-distance flights made by the representatives of other nations. He thought the winning flight of over 900 miles, made in 8½ hours, at an average speed of 106 m.p.h., with only one stop, had greatly to the prestige of British Aviation over the world.

He was particularly pleased to have to present the King's Cup on this occasion, because Sir Chas. Wakefield, Mr. Cobham, and the D.H.50, were all tried friends of his. Charles had been a singularly good friend to flying for years, and could be relied upon in the future. Mr. Cobham had done incalculable service in showing the flag all over Europe, and he had found that in whatever aerodrome he might chance to find himself, the first introduction made of him was as to the whereabouts of Mr. Cobham. Mr. Cobham got round Europe in the air very much better than (Gen. Brance) might trot round Mayfair on his feet. If you asked him the way to get to any one spot in Europe by air his reply was rather of the "take the first to the station and then bear to the right at the White Horse" order.

As to the D.H.50 it was now famous all over the world and called for no eulogy on his part.

SIR CHARLES WAKEFIELD, in reply, recalled that in 1909 he had been asked by the then Lord Mayor to preside in his place at a meeting for the advancement of public interest in aviation. He had found himself to be inspired to prophesy concerning the future possibilities of flying. His words moved the audience mainly to hilarity, and when he saw his own words in cold print, he felt himself that he had perhaps been ridiculously optimistic.

Nevertheless his forecast of that day had been fulfilled more than fulfilled, in the intervening period, and he was quite sure that the future would show continued progress.

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1909-1924.

8 Robert Blackburn designed and built his first aeroplane, flying it himself in 1909, his aerodrome a shore, his cockpit a cane chair mounted on the undercarriage. To-day the Blackburn Company's ers have a reputation second to none. Their experimental and school aerodrome covers many acres e Humber north shore. Every advantage science and British Workmanship can produce is embodied in their machines.

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In particular he hoped and believed that the meeting which had just terminated marked the beginning of a new phase, and that in time the light aeroplane would be used by the young men of England just as the motor-bicycle or the light car was to-day.

The Chairman then proceeded to the distribution of I.O.U.s and cheques to the several winners of prizes in the light aeroplane competitions. He carried out this duty with the minimum of speech, leaving it to the audience to supply any necessary comment. As it was felt that nobody had won anything undeservedly, the audience rose to the occasion in excellent style, the applause being particularly intense when Mr. Sopwith led Raynham forward to receive Capt. Wilson's prize, and when the Cranwell Team, in their entirety, too received their hard-earned Reliability prize.

Lord Edward Grosvenor then presented the Grosvenor Cup to Mr. Bert Hinkler. He succeeded in beating Col. McLean by using no words at all.

Thereafter, Mr. A. E. L. CHORLTON, of Beardmores, expressed on behalf of his firm their indebtedness to the officials of the meeting for their efficient conduct of the week's work, and put the credit for the winning of the prize on the designer, pilot and crew of the winning machine. Unfortunately a large part of his remarks were inaudible to the reporter, and so much alone of his meaning could be gathered.

COL. DARBY, who, as Clerk of the Course, had displayed his usual energy throughout the week, expressed the thanks of

the Royal Aero Club to all those who had given their services in the running of the meeting, and very particularly the Air Ministry for allowing so many of their own officials to act as officials at the meeting. The meeting had not been the simplest to organise and there had been difficulties which these had been overcome by the goodwill and interest concerned in doing their best to make it a success.

MR. T. O. M. SOPWITH thereupon rose and said that one had to move a vote of thanks to Col. Frank McLean. Col. McLean was the chairman and was also Chairman of the Royal Aero Club—and no better a chairman could be imagined. He thought he could safely congratulate him on the success of the week which had just ended, for in one respect the most extraordinary aviation meeting could recollect in a fairly long experience of such a kind. There had been produced for these competitions a considerable number of entirely new aeroplanes—which had not been produced before. What was phenomenal was that no one had produced a "dud."

COL. MCLEAN terminated this part of the proceedings, returning thanks and the assembled company then divided to dance or otherwise amuse themselves. Being quite able to keep going very much after 2 a.m., one then retired to put in some arrears of sleep—with considerable success, considering that one's bed was vertically over the bandstand. It was gathered next morning that the most strenuous retired round about 6 a.m., and it was evident that the Imperial was structurally intact. Thus the day may be considered to have been ended with considerable success.

A Wise Move by the Ministry.

The Air Ministry on the Monday following the close of the Lympne meeting issued a general expression of their willingness to accept for comprehensive trials at the Experimental Establishment, Martlesham Heath, any or all of the machines presented for the competitions at Lympne irrespective of whether they passed or did not pass the eliminating trials.

One must congratulate those responsible for this announcement on the promptness with which they have recognised the desirability of obtaining accurate performance data for as many as possible of the Lympne two-seaters, and hope that as many as possible of the entrants will take advantage of the Ministry's offer and will publish to the world at large the result of the tests.

Lympnepressions.

It was reported that one of the high officials of the meeting decided to try the seating arrangements of the Short. He got in with a shoe-horn all right, but it was found necessary to procure a tin-opener before he could be released.

A certain Air Ministry official who desired to find the Secretary of the meeting, who was previously unknown to him, was asked later if his search was successful. "If you mean the resplendent gentleman in the orange suiting," he replied, "I found him."

It was observed that Sq. Ldr. Maxwell, who had damaged his wrist in starting his car, had acquired some of the said gentleman's orange suiting for a sling.

Dr. Whitehead Reid made a welcome appearance every day at the aerodrome either on his Avro or SE.5. A keen student of research tried the experiment of eating an apple a day to see if it had the alleged effect on the doctor's arrival.

It is believed that it was only possible to get Mr. Courtney into his "giant Pixie air liner" by converting him into plaster of Paris and pouring him in.

One of the features of the meeting was the speed made by a certain high official up and down a ladder when Mr. "Pedro" Mann was performing on Wednesday. The time down the ladder is thought to exceed all previous records for such a course.

Departing from the dining-room of the Imperial at the close of Saturday night's banquet, one pilot of a firm not markedly successful in any of the contests was heard to remark:—

"That fellow Sopwith was a bit hard on —'s. He said nobody had turned out a dud. We did do our damndest."

The Cranwell team spent most of their time on Saturday evening inquiring in various likely quarters as to the probable nature of next year's contest, so that they might get busy at once on their next machine.

Even their enthusiasm was slightly shaken by the suggestion that trials to be conducted at Felixstowe and Martlesham of three-seater amphibians with 750 c.c. engines would be the chief event of 1925.

Dope.

It is interesting to learn that the Gloucestershire machine prepared for this year's Schneider Trophy was doped with Cellon. On both occasions on which England has won the

trophy Cellon has been used on the successful machine last year the defender again used Cellon.

In the light aeroplane trials five out of the eight machines to pass the eliminating tests were doped with Cellon.

Titanine was used on the first two home in the Grosvenor Cup Race and also five machines in the trials were doped.

Petrol.

The Avro machine on which Mr. Bert Hinkler won the Grosvenor Cup at Lympne was running on Shell Aviation Spirit as bought at any roadside garage, and six of the machines to finish used Shell. Mr. Shaw assures one that no secret prize of any sort was offered or suggested to pilots for so running.

In tests carried out by Mr. Roy Fedden with the Cherub prior to the contests it was found that best results were obtained running on Shell Aviation.

B. P. Aviation Spirit was used on most days by Maurice Piercey on the Beardmore machine which won the competition.

Oil.

It is interesting to learn that every single machine which won any competition throughout the Lympne meeting used Castrol. This is a great feather in the cap of Barrett, of C. C. Wakefield and Co., Ltd., who worked defatigably throughout the meeting.

After Lympne.

I dream of another meeting
For aircraft of modest size
Under rules of the simplest nature
For a perfectly fabulous prize.

And I dream that elimination
Shall never be heard of there
And that never a pilot entered
Shall have cause for the slightest swear

Perhaps one day I shall see it
On some happy un-Lympne-like shore
When the Seftons cease to Branker
And the Goodmans Crouch no more.

What'll I do?

Gone is that Lympne week that this year was fine
None broken that cannot be mended.
Oh big-ends go thy way
And con-rods go thine
Now that our trials have ended.

What'll I do when I am far away
And engine's feeling blue, what'll I do?
What'll I do when I am wondering why
My crank-case came in two, what'll I do?
What'll I do with just a fuselage
To tell my troubles to?
When I'm alone with just the bits
That won't stay put,
What'll I do?

A Query.

Does the Cherub lose its gearing on the test-bench overnight? When you wake up in the morning will the Avro be in flight? Mr. Fedden has been working with all his main and might so the Cherub lost its gearing in the Avro overnight.

At the
2 Seater Light-plane
Competitions
at
LYMPNE
1924

*Castrol's
Supremacy
verified*

**PRIZE FOR GREATEST AGGREGATE OF
MARKS IN TESTS.**

1st—Mr. M. W. Percy..... (Beardmore Monoplane
Bristol "Cherub" Engine).
2nd—Mr. C. F. Uwins..... (Bristol Brownie Monoplane
Bristol "Cherub" Engine).

RELIABILITY TEST.

Won by Flight-Lieut. N. Comper..... (C.L.A.2 B plane
Bristol "Cherub" Engine).

**GETTING OFF AND PULLING UP
COMPETITION.**

1st—Mr. C. F. Uwins..... (Bristol Brownie Monoplane
Bristol "Cherub" Engine).
2nd—Mr. F. P. Raynham..... (Cygnet II Biplane
A.B.C. Engine).

GROSVENOR CHALLENGE CUP.

1st—Mr. B. Hinkler..... (Avro Avis Biplane
Bristol "Cherub" Engine).
2nd—Mr. S. H. Gasell..... (Wesland Wood Pigeon Biplane
Bristol "Cherub" Engine).
3rd—Mr. J. L. Parker..... (Short Satellite Monoplane
Bristol "Cherub" Engine).

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THE ROYAL AIR FORCE.

The London Gazette.

Sept. 30.

GENERAL DUTIES BRANCH.—The following are granted S.S. commns. in the ranks stated:—FLG. OFFS. (for seven years on the Active List).—I A. Bertram (Lt. R.N., ret'd.), G. I. C. Peacocke (Lt. Indian Army, ret'd.) (Sept. 15); A. W. Rowbotham (Lt. Indian Army, ret'd.) (Sept. 16).

PLT. OFFS. ON PROBATION (for five years on the Active List).—E. J. C. Badcock, C. N. Boswell, G. B. Collet (Lt., Hants Regt.), L. Connolly, L. Dalton-Morris, J. A. C. Florence, A. H. Frost, J. S. Georgeson, E. B. C. Groner, G. D. Harvey, R. G. M. Hill (Sec. Lt., London Regt.), R. D. Kerans, A. R. C. Kirby, L. R. Mizen, J. J. Nolan, W. F. Rimmer, F. C. Rowland, R. J. Stevens, C. W. Switzer, D. W. Trotter, J. W. Van der Beeck, A. J. Walker, G. A. Whitehead (Sept. 15).

The following are restored to full-pay from half-pay:—Sq. Ldr. A. S. S. MacLaren, O.B.E., M.C., D.F.C., A.F.C. (Sept. 20); Flt. Lt. T. Q. Studd, D.F.C. (Sept. 17); Flg. Off. W. N. Plenderleith (Sept. 20). Sq. Ldr. F. E. Sandford, A.F.C., is placed on half-pay, scale B (July 9).

RESERVE OF AIR FORCE OFFICERS.—The following are confirmed in rank:—FLG. OFFS.—H. A. Hince (Sept. 4); K. Don (Sept. 25). PLT. OFFS.—G. C. F. Ely (Sept. 4), H. L. Miller (Sept. 11); C. K. Carter (Sept. 25); J. M. Mathieson (Sept. 25).

Oct. 3.

GENERAL DUTIES BRANCH.—H. C. Macphail is granted a S.S. commn. as a Plt. Off. on probation, with effect from and with seny. of Sept. 22, Plt. Off. on probation J. H. Caulfeild is confirmed in rank (May 10); Flg. Off. C. E. Bowden (Lt., R.A.S.C.) relinquishes his temp. commn. on return to Army duty (Sept. 30).

STORES BRANCH.—Flg. Off. P. H. Wynne-Burt is granted a permanent commn. in the rank stated (Oct. 1). The following Plt. Offs. on probation are confirmed in rank and promoted to the rank of Flg. Off. (June 17): W. F. Barrell, D. F. A. Clarke, J. M. Hopkins, G. R. Keep, S. C. Wyatt.

MEDICAL BRANCH.—The following are granted S.S. commns as Flg. Offs. with effect from and with seny. of Sept. 15:—C. J. MacQuillan, M.B., B.A., F. P. Schofield, M.B.

Appointments.

Week ending Oct. 6.

GENERAL DUTIES BRANCH.—Wing Commanders A. Shekleton, D.S.O., to Reception Depot, West Drayton, to command, 1/9. C. E. Maude, to School of Naval Co-operation, Lee-on-Solent, pending taking over command, 14/10.

Squadron Leaders F. W. H. Lerwill, O.B.E., to Reception Depot, West Drayton, 1/9. F. C. V. Laws, O.B.E., to School of Photography, S. Farnborough, 28/10.

Flight Lieutenants H. J. Edgar, to School of Photography, S. Farnborough, 24/9. C. Perri, to Air Ministry, 28/10. H. E. Walker, M.C., D.F.C., to R.A.F. Depot, 1/10. E. B. Grenfell, A.F.C., to R.A.F. Depot, on transfer to Home Estab., 30/9. M. Moore, O.B.E., to remain at R.A.F. Depot instead of to No. 3 Group H.Q., as previously notified. F. Leathley, M.C., to R.A.F. Depot, on transfer to Home Estab., 14/9. V. A. Albrecht, O.B.E., M.C., to R.A.F. Depot (Non-effective Pool), 24/9. N. V. Wrigley and S. T. Freeman, M.B.E., to Reception Depot, West Drayton, 1/9. C. S. Richardson, M.B.E., to Basrah Group H.Q., 12/9. C. J. W. Hatcher, A.F.C., to No. 1 Stores Depot, on transfer to Home Estab., 30/9.

Flying Officers R. L. Ragg, to R.A.F. Depot, on transfer to Home Estab., 11/9. G. W. Mahony-Whitton, H. Nelson, W. Wheatley, A. H. Harrison, D.S.M., and R. G. Chapell, to Reception Depot, West Drayton, 1/9. I. Hamilton, M.B.E., D.F.C., to I.A.A.D., Henlow, 27/9. A. W. Wood, to No. 17 Sqdn., Hawkinge, 9/10. B. J. O'Connor Hanstock, to R.A.F. Depot (Non-effective Pool), on transfer to Home Estab., 13/7. H. A. Boniface, to No. 27 Sqdn., India, 25/1. G. P. H. Carter, to R.A.F. Depot, 10/10.

Pilot Officers A. E. St. G. Gratte, to No. 20 Sqdn., India, 3/3. H. J. Storey, to No. 28 Sqdn., India, 22/5. A. S. Hutton and G. H. Rawlinson, to No. 60 Sqdn., India, 25/1.

MEDICAL BRANCH.—Flying Officer (Medical) D. Magrath, M.B., to Research Laboratory and M.O.S. of I., Hampstead, for short course, 24/9.

STORES BRANCH.—Flight Lieutenant (Stores) W. A. Kingston, to No. 2 F.T.S., Digby, 29/9. C. Harvey, to R.A.F. Depot, 7/10. Flight

Lieutenant (Accountant) W. E. Fisher, M.C., to School of Air operation, Old Sarum, 14/10. Flying Officers (Accountant) Stonehouse, to No. 1 F.T.S., Netheravon, 14/10. W. R. Donkin, 11 Sqdn., Netheravon, 14/10. Flying Officer (Stores) A. T. to Aircraft Depot, Iraq, 12/9.

A Kurdistan Clasp.

The Air Ministry announces that His Majesty the King has been graciously pleased to approve of the grant of the Service Medal, with clasp "Kurdistan," to the forces, the command of Air Marshal Sir J. M. Salmond, C.M.G., C.V.O., D.S.O., which carried out certain operations in Kurdistan between Mar. 19, 1923, and June 18, 1923.

An Iraq Casualty.

The following is taken from the *Manchester Guardian*, Oct. 3:—

Mr. W. Pilgrim-Morris, solicitor, of Mold, has received a telegram from the Air Ministry intimating that his eldest son, Pilot Officer Pilgrim-Morris, R.A.F., has been wounded in the course of military operations in Iraq.

The injury is a flesh wound between the ribs. The bullet has been extracted and the patient is making satisfactory progress. Pilgrim-Morris has also received a message from his son to the effect that he is "quite O.K."

Mr. Morris, of No. 6 Squadron, stationed at Mosul, is apparently one of the three casualties referred to by Mr. Thomas in the House of Commons on Sept. 30 as "wounded, but not seriously."

Targets at Malta.

The *Daily Mail* states:—

In air manoeuvres at Malta 80 per cent. of the machines at the Grand Harbour, where the Mediterranean fleet lies, were shot down, obtained their objective.

Lord Ypres and the R.A.F.

The following paragraph is taken from *The Times*, Sept. 29:—

Lord Ypres gave an address on Sept. 28 at the anniversary of the memorial, erected by Lady Beauchamp, near Walmer, to 16 officers of the R.N.A.S. who gave their lives for their country during the Great War. The memorial stands close to the site of the aerodrome on Hawk's Hill, Walmer. The service was conducted by the Chaplain-in-Chief, R.A.F., the Rev. H. D. L. Viener. Lord Ypres, who wore the uniform of Field Marshal, said that during the few years, both in France and in this country, he had been in close touch with the R.A.F., and the more he saw of its men the more impressed he became of their indomitable courage, contempt of death and danger, their uncompromising devotion to their stern determination to excel in their business at whatever cost to themselves.

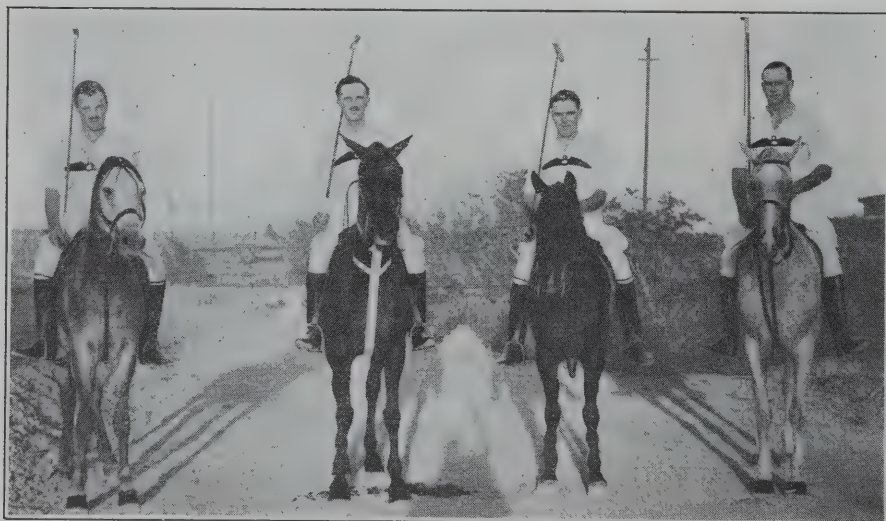
The Grain Dinner.

The 6th Annual Feunion Dinner for Officers who have been in time stationed at the Isle of Grain Air Station, will be held on Saturday, Oct. 25, at the Mars Restaurant, Frith Street, Soho, for 8 o'clock. Tickets, exclusive of wines, may be obtained from the Secretary, Capt. L. A. T. Pritchard, 77, Biddulph Mansions, Avenue, London, W.9, price 7s. 6d. Dress, Dinner Jackets.

The Secretary announces that he has annually sent out some invitations to ex-officers of Grain, of which a large proportion have steadily ignored the invitation. In order to save bothering them to take no interest in meeting their old messmates, Capt. P. proposes in future not to send out notices except to those who notify him of their desire to be kept on his books.

The Great Yarmouth Dinner.

The fifth annual re-union dinner of the officers and ex-officers of the Great Yarmouth Air Station will take place at Oddenino's on Oct. 25, at 7.30. Full particulars will be found on another page of this issue.



The winners of the Baghdad Tournament.

ment, 1924.—No. 8 Squadron's

Team who beat nine other teams

cluding two Army teams and the

Police. Left to right: Flt. Lt.

Cock, M.C. (No. 1), Sq. Ldr. F. S.

D.S.O., M.C., A.F.C. (No. 2), Flt.

A. G. Jones-Williams, M.C. (No.

Flg. Off. N. Vincent, D.F.C. (No.

BEARDMORE MONOPLANE WINS



Sport & General Photo.

The Air Ministry 1st Prize of £2,000

"No more efficient Aeroplane than the Beardmore Aeroplane (which won the chief prize) has ever left the earth," stated Lt.-Col. W. A. Bristow, the aeronautical consulting engineer, who kept the records of the competitions.

Margin of speed is a very good standard of efficiency in an aeroplane, and this machine has a very wide margin. It can fly at about 90 miles an hour and also under 40 miles an hour. It can rise from the ground quickly and pull up slowly.

**BEARDMORE
MONOPLANE WITH
CHERUB ENGINE**

THE TIMES, LIGHT AEROPLANE TRIALS.

THE LYMNE RESULTS SUCCESS OF BEARDMORE MONOPLANE.

(FROM OUR AERONAUTICAL CORRESPONDENT.)
LYMPNE, OCT. 4.

The Beardmore Wee Bee monoplane, flown by Mr. M. Piercy, and fitted with an ungeared Bristol Cherub engine, won the first prize of £2,000 offered by the Air Ministry at the Light Two-seater Aeroplane Trials which concluded here to-day. The Bristol Brownie monoplane, flown by Mr. C. F. Uwins, also fitted with an ungeared Cherub engine, secured the second prize of £1,000.

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AND COMPANY LIMITED

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

R.A.F. Boxing.

A very successful boxing tournament was held at the School of Physical Training, R.A.F. Heliopolis, on Friday, Sept. 19.

RESULTS:—*Novices' and Contests*.—AC vickers, H.Q.E.G., beat Cpl. Duff, H.Q.M.E., after a rare fight. AC. Leech, 216 "B" Sqdn., beat L-AC. Gamble after a very good bout. AC. Trubee, H.Q.E.G., beat L-AC. Bennett, H.Q.M.E. Trubee has a good style, standing up and using his left well. AC. McKechnie v. AC. Taylor—Taylor hurt his hand and had to retire in the second round. AC. Ianigan, 216 Sqdn., beat AC. Thorne, H.Q.E.G. in a rousing fight. L-AC. Neill, E.R.D., beat L-AC. Marter, H.Q.E.G., after a good fight.

L-AC. Cockburn and L-AC. Davidson are the Welter and Lightweight champions respectively, and a draw was declared after a good fight. AC. Thompson, H.Q.E.G., beat AC. Brockwitz, H.Q.M.E., in a four-round go. Brockwitz fought splendidly, but was not quite quick enough. AC. Upfield, H.Q.E.G., beat AC. Whickham, 216 Sqdn.

The contest of the evening was a six-round bout between F.S. T. Swallows, School of P.T. (Bantam-Weight Champion, R.A.F., Home Forces, 1920-21), and Cpl. Wasley, R.A.F.M.S. Cpl. Wasley surprised everyone by his speed and stamina, but the Flt. Sjt. had his measure. Wasley depended on a strong right swing, but Swallows, boxing coolly and using a good left, managed to pile up the points.

Among the officers present were Air Commodore R. H. Clark-Hall, C.M.G., D.S.O., Group Capt. A. G. Board, C.M.G., D.S.O., Group Capt. F. W. Bowhill, C.M.G., D.S.O., Wing Cdr. J. E. A. Baldwin, D.S.O., O.B.E.

Group Capt. Bowhill, in thanking the officials and competitors, complimented the airmen on the wonderful clean exhibitions they had given.

The officials were:—Referee, Sq. Ldr. P. T. Rutherford, O.B.E.; Timekeeper, Flg. Off. A. F. F. McCreary; Judges, Wing Cdr. A. G. Board, C.M.G., D.S.O., and Flg. Off. W. R. K. Atkinson; M.C., S.M. J. Fallon; Chief Whip, Sjt. J. Jeffries, D.C.M.; House Manager, Sjt. B. Irish; Secretary, S.M. J. H. Wortley, M.M.

Association Football.

R.A.F. v. FOOTBALL ASSOCIATION.—A team representing the Football Association beat the Royal Air Force at Uxbridge on Sept. 24, by nine goals to two.

The pace and cleverness of the winners' forwards proved too much for the R.A.F. defence. Hadley, though saving several good shots, did not inspire confidence in the R.A.F. goal, but Sjt. Young, at centre half-back, did well, and Kirk was their best forward. The R.A.F. did not make the most of their chances in the opening half, and though scoring first though Massarella were three goals behind at the interval. After changing ends, Gibbins, Bryant and Potter scored the goals for the F.A. team, and Massarella added the second goal for the R.A.F.

R.A.F. (Uxbridge) v. Middlesex.—At Uxbridge on Sept. 10 the Middlesex forwards combined cleverly, but were frequently held in check by a resolute defence, in which Sjt. Fretwell excelled. The R.A.F. made many dashing movements, but these were spoiled by hesitancy in front of goal, although Utz and Paterson were responsible for splendid attempts to defeat Norman. Kirk, the R.A.F. inside left, was in splendid form, frequently eluding the Middlesex defence. Young scored the only goal in the first half for the visitors, while Massey (three) and Macey (two) added further goals after the interval for Middlesex. Dempsey obtained the Airmen's only goal.

The above account of the match is taken from the *Morning Post*, with acknowledgements.

PERSONAL NOTICES.

DEATHS.

HALL.—On Sept. 22, at Abu Sueir, Egypt, as the result of a flying accident, Stanley Edward Hall, Pilot Officer, R.A.F.

NEWALL.—On Sept. 29, at Halton, Bucks, Maud Mary, dearly beloved wife of Group Captain C. L. N. Newall, R.A.F., aged 29 years.

STIRLING.—On Oct. 2, at Andover, as the result of a flying accident, Archibald Hay Stirling, Lt., Royal Scots, and Flg. Off., R.A.F., No. 13 (Army Co-operation) Sqdn.

Mr. Stirling was flying a Bristol Fighter. At the inquest it was stated that the machine was coming down from 2,000 ft. in a spiral and that the pilot either became giddy or misjudged his distance.

TURTON.—On Oct. 2, at Andover, as the result of a flying accident, William James Arthur Turton, Leading Aircraftman, R.A.F. L-AC Turton was the passenger in the machine piloted by Mr. Stirling.

FORTHCOMING MARRIAGE.

SLEIGH—OGLE.—The marriage arranged between Flg. Off. Horatio Sleigh, 216 Squadron, R.A.F., Heliopolis, Cairo, and Dorothy, widow of Dr. J. G. Ogle, of Mount Cottage, Redhill, will take place at noon on Thursday, Nov. 13, at All Souls', Langham Place.

MARRIAGES.

BEVAN—TROWBRIDGE ALLEN.—On Sept. 27, at Farmington, Conn., U.S.A., Arnold Bevan (late R.F.C.), son of Mr. and Mrs. Trevor Bevan, of Bournemouth, to Muriel, only child of Mr. and Mrs. Trowbridge Allen, of Farmington, Conn.

KNOWLES—INMAN.—On Oct. 1, at Christ Church, Hampstead, Sq. Ldr. R. H. Knowles, M.D., D.P.H., R.A.F., only son of the late H. W. Knowles, M.D., and of Mrs. Knowles, 5, Rawlinson Road, Oxford, to Gladys Eyre, youngest daughter of Mr. and Mrs. Henry Reid Inman, The Grange, Hampstead Heath.

YOUNG—MARSH.—On Oct. 4, at All Souls', Langham Place, Walter Arnold Young (late O. and B.L.I. and R.A.F.), youngest son of Mr. G. W. Young, of Holywell, Oxford, to Marion Kate, only daughter of Mr. and Mrs. S. Marsh, of Richmond House, Aldershot.

BIRTHS.

SPENCER.—On Sept. 27, at 48, Lexham Gardens, Earl's Court, to Vera, wife of Flg. Off. G. R. C. Spencer, R.A.F.—a son.

TOOKE.—On Sept. 21, at a nursing home at Barons Court, to Marjorie, widow of Flt. Lt. B. C. Tooke, R.A.F.—a son.

WHATELY SMITH.—On Sept. 28, at Weybridge, the wife of Walter Whately Smith (Directorate of Research, Air Ministry)—a son.

THE GLOBE TROTTERS.

THE AMERICAN EXPEDITION.

On Sept. 28 the American Round-the-World Expedition landed at Seattle, Wash., the terminus of their World Flight and the exact spot from which they started on April 6.

The following figures give the principal features of World Flight:—Total elapsed time, 175 days; miles, 27,534; flying days, 66; actual flying time, 351 hrs. 11 min. and average speed, 76.36 m.p.h.

To all concerned the heartiest congratulations are accorded and these are no less sincere than those that would have been accorded had the flight been accomplished by any other expedition.

Although the very complete organisation of the flight, involving something like £200,000, contributes largely to the most complete distribution of fuel, oil and spares and the patrolling of the seas by the complete U.S. Navy could have prevented any of the Douglas World Cruisers crashing in an impenetrable fog, a fate that brought an end to Sq. Ldr. MacLaren's heroic attempt to fly round the world without official assistance.

A considerable amount of the preliminary preparation was only precautionary. This is obvious from the fact that in the case of Lieut. Nelson's machine New Orleans no repairs or repairs were carried out throughout the flight, the exception of engines and the interchange of wheel carriages and floats at the predetermined points, and understood that the same applies to Lieut. Smith's machine. In the case of Lieut. Wade's machine, although it was to land in the Atlantic owing to engine trouble, the machine was absolutely undamaged, and but for the irreparable damage caused by the breaking of a boom on the *Richmond* while it was being hoisted on board, would have continued after repairs had been carried out.

As regards the lessons to be learnt from the undertaking it is a little too early to voice any definite views. The story of the flight from the point of view of the records by the expedition has yet to be studied, and for any forecast to be made of trans-oceanic air lines, air services to the North Pole, etc., for multi-seated air liners in which General Public will ride, much as they do now in the United Kingdom from Hammonds or Hendon to the City, it is only under-estimate the hardships of the flight from the pilots' point of view.

THE ARGENTINE EXPEDITION.

Major Zanni and Signor Beltrame, of the Argentine Air Service, who are attempting to fly round the World in Fokker-Napier equipment, arrived at Shanghai on Oct. 1.

While at Hong-Kong an accident occurred which nearly ended the flight. Major Zanni, Signor Beltrame, and the Peruvian Consul were going out to the seaplane in a launch when their craft was rammed by a Government steamship. Major Zanni and the Consul were thrown into the sea. Major Zanni, who could not swim, was missing for over 20 minutes. Fortunately he was picked up by another launch and except for the loss of some personal kit soon recovered his composure.

After this accident it was announced that General Yungshiang, the Chekiang Military Governor, had prohibited Major Zanni from landing at Shanghai, but as he has landed at Shanghai it is presumed that he either obtained permission or that he ignored the prohibition.

THE AMSTERDAM-JAVA FLIGHT.

On Oct. 1, Mr. Van der Hoop, accompanied by Lieut. Weerden Poelman, of the Dutch Army Air Service, as navigator, and Mr. Van den Broeke, as mechanic, left Amsterdam on a Fokker F.VII monoplane (Rolls-Royce Eagle IX engine) in an attempt to fly to the Dutch East Indies.

The total distance to be covered is about 10,000 miles, the route will be via Prague, Belgrade, Constantinople, Angora, Aleppo, Baghdad, Basra, Bander Abbas, Calcutta, Karachi, Multan, Umballa, Allahabad, Calcutta, Rangoon, Bangkok, Sengora, and Batavia.

The Asiatic Petroleum Co. have contracted to supply fuel for the flight, and the oil to be used will be Wakefield Castrol.

Spare parts for the engine and aircraft have been supplied from Constantinople, Basra, Calcutta, and Bangkok.

At Sengora an officer of the Dutch East Indian Army Air Service will join the machine and act as pilot over the portion of the journey, while a naval seaplane will be stationed in the Malacca Straits to render assistance in case of emergency.

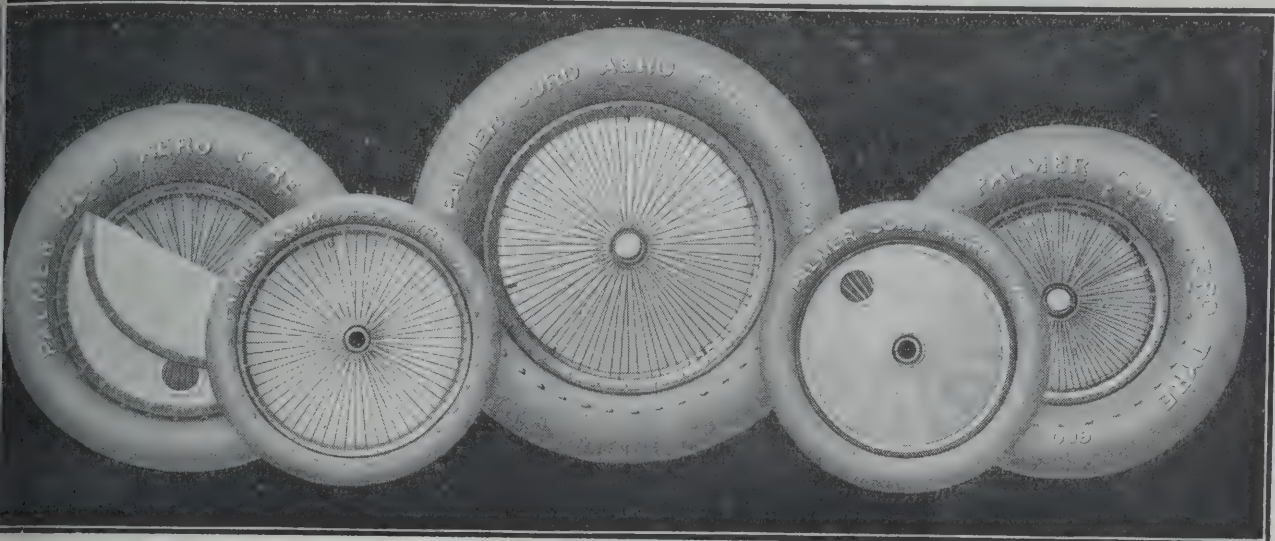
The Fokker F.VII arrived at Prague on Oct. 1 at 10 hours and left on the following day at 09.00 hours for Vienna.

On Oct. 4 the machine left Sofia for Constantinople, but owing to thick fog was forced to land at Philippolis.



PALMER

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STANDARD SIZES

Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore				Length	Bore				Length	Bore	
75 x 55	168	111.12	25.4	m/m Central	700 x 100	96	178.	55.	132/46	1000 x 150	201	185.	60.32	125/60
100 x 60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	1000 x 180	148	220.	80.	Central
150 x 60	30	89.	31.75	Central	650 x 125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
175 x 60	21	160.	28.	Central	750 x 125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900 x 230	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
200 x 75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
200 x 75	78	178.	44.45	132/46	800 x 150	82	185.	55.	135/50	1100 x 220	134	220.	66.67	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	"	136	250.	80.	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	1250 x 250	133	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
250 x 100	77	178.	44.45	132/46	1000 x 150	169†	185.	55.	135/50	1500 x 300	115	304.8	101.6	Central
"	92	185.	55.	135/50	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	95	185.	55.	Central	"	131	220.	66.67	Central	1750 x 300	139	400.	152.4	Central
					"	150	185.	55.	Central					
					"	167	185.	55.	125/60					
					"	174	250.	80.	Central					

*Wheels Nos. 161, 163 and 211 are of stronger type than the other wheels for 800 x 150 tyres.

†Wheel No. 169 is fitted with Ball Bearings.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Old Acquaintance.

Lt.-Col. F. A. G. Noël, who has recently been to South Africa, met in the course of his journey a number of officers formerly in the R.A.F. Many readers will be interested to hear of them. So one gives the information as it came from Colonel Noël, thus:—

"I went to Roberts' Heights, about four miles outside Pretoria, where the S.A. Air Force Headquarters are, also their training aerodrome. I met there Colonel Sir Pierre van Ryneveld, Majors Hoare, Meintjes and Reason. Major Meintjes took me round their aerodrome and it would be difficult to find machines and sheds kept in better condition. They have, as you know, Avros (Clergêt), D.H.9's and 4's and S.E.5a's (Viper).

"The aerodrome is approximately at 5,000 feet, but all their machines seem to carry on all right though their take-offs are as would be expected rather long. Several flights have been made in the day to Cape Town, a distance of just over 1,000 miles.

"At Bulawayo, Rhodesia, the chief town engineer, Capt. Thornton, was a Camel pilot in the War. I stayed four days with Capt. Livingstone who was for a long time Adjutant at Kenley, after losing a leg as the result of poison, having been wounded in the foot when flying an F.E.2b. To get to his farm I spent a day on an ox-wagon, starting from Banket Junction, a station 70 miles North of Salisbury. The house and all etc. were built by himself with black labour and very nice it all is. The closest farm is about eight miles off and owing to entire lack of roads the only means of conveyance is either riding or ox-vehicle.

"The present Minister of Defence in the new Rhodesian Government is Major Hudson, late R.A.F., and a Capt. Hunt who was at Norwich and later a prisoner of war, having been shot down in France, is engineering, also at Salisbury.

"At East London I came across Colonel Dixon, whose last command in the War was I believe Hendon. He is now No. 1 of S.A.R. (South African Railways) at East London. At Cape Town I met Major Sarigny, at one time Adjutant at Kenley and later commanding at Brooklands, and then Coventry.

"At the Victoria Falls the hotel boats, including one motor launch, are run by an ex-R.A.F. pilot, whose name I have forgotten.

"Wherever one goes there seem to be people who must have many friends among the readers of your paper. I understand the Air Ministry will forward letters sent them in stamped envelopes."

[One suggests that other Globe Trotters would earn the gratitude of readers of THE AEROPLANE if they would impart similar information concerning former R.A.F. people whom they meet on their journeys.—ED.]

The U.S. Naval Manoeuvres.

The U.S. Naval Squadrons which left Hampton Roads last January and returned to their base on May 1, consisted of 12 F.5.Ls, two H.16s and one P.N.7, scouting and patrol types and 11 D.T. torpedo and bombing machines. In addition five D.T. torpedo and bombing machines were based on Culebra (Panama) to co-operate with the defending Fleet.

The operations of these Squadrons extended from the mouth of Chesapeake Bay to Virgin Islands in the West Indies and a total of 180,000 miles were flown. Each machine averaged 130 hours at an average speed of 60 m.p.h. and only one machine was seriously damaged.

The work of the Squadrons consisted in scouting operations for the surface Fleet, spotting for gunfire, torpedo attacks, smoke screen laying, wireless communication and mail service, observation of torpedo practice, the aircraft recovering lost torpedoes, etc., photographic mapping and general reconnaissance.

The star turn of the cruise was the performance of the flying-boat P.N.7. This machine is described as the "flag-plane" of Vice-Admiral McCully, commander of the Scouting Fleet. It is fitted with two Wright "T" engines and the total available h.p. is 1,100. During the cruise South the P.N.7 took off with a load of 16,000 lbs. and cruised at 78.80 knots.

The crew consisted of Capt. Gherardi and Lieut. Hundt, pilots, Lieut.-Comdr. Capehart, Lieut. Snody, E. J. Mulligan, field engineer for the Wright Aeronautical Corp., a wireless operator and five enlisted men.

On Mar. 10, Lieut.-Col. Davidson-Houston, C.M.G., Acting Governor of the Windward Islands, was taken for an inspection trip in the P.N.7. The first stop was made at Kingston after a 50 minutes' flight, where the Governor subscribed to the oath of office. From Kingston they flew to St. George Island and Grenada. On the return trip a landing was made at St. Lucia.

Vice-Admiral McCully, after several flights, came to the

conclusion that the real place for the commander of a fleet was not on the bridge of a flagship, but in such a machine as the P.N.7.

German Air Line Development.

According to the Berlin correspondent of *The Times* the representatives of the Junkers Aircraft Company have returned to Dessau after concluding a comprehensive agreement, the fruit of a lengthy series of negotiations conducted with the Sardar Sipah, Riza Khan, the Persian Prime Minister and Minister of War, in Teheran. Although terms of the contract have not yet been made public, it undoubtedly have the effect of placing the organisation under the management of a great Transasiatic airway in German hands. Viewed in the light of its origin and of the immediate developments in the Middle East, for which provision has been made, it must be taken to forebode a further consolidation of Russian influence in the Middle East.

In return for earlier concessions obtained from the Soviet Government, the Junkers Aircraft Company had bound itself to organise an air line from Leningrad to Baku, with connections at either end with Stockholm and Teheran. The line Moscow-Rostoff-Tiflis, or, as it afterwards became, Moscow-Rostoff-Baku-Tiflis, was flown twice weekly in summer of 1923, and there have been regular flights since that time between Stockholm and Helsingfors. Experimental flights have already been carried out on every section of the route from Stockholm to Teheran.

As the result of the agreement which has now been concluded with the Persian Government, a regular service will be opened immediately between Baku, Enzeli, and Teheran, and trial flights preparatory to an extension from the Persian capital to Bushire will be made simultaneously.

The air voyage from Stockholm to Teheran will occupy three days instead of the three weeks required for the journey by steamer and train, and Teheran, which is now reached by motor journey from Enzeli, will be brought, before the end of the present month, within a few hours of the Caspian at Enzeli and Baku.

The aeroplanes and pilots employed in the Persian service will be furnished exclusively by the Junkers Company, and all events until an effective training school for pilots has been established.

A scheme for a comprehensive system of international air services has been worked out by the Junkers Company, and it is hoped that with the co-operation of other countries above all of Great Britain, some portions of it at any rate may have come into operation by the end of 1926. It is proposed to establish a "three-nations aerodrome" at a point where the German, Polish, and Czechoslovak frontiers meet south of Gleiwitz, for the use of the great international air lines.

For some time past it has been clear that the German Government incline to the belief that the surest way to secure a dominant position in the control of international air traffic lies through a partnership with Great Britain. Their aim has been to establish an irrefutable claim to be admitted to such a partnership upon a foundation of solid accomplishment. Recently they have long since monopolised; they have thrust tendrils towards Scandinavia, and in Budapest they are at the gateway of the Balkans. The value of their latest quest in Persia is great, since it carries with it the mastery over air routes on towards Afghanistan and the Indian frontier.

Light Aeroplanes in Holland

It has been reported that the Dutch Naval Air Service is considering the employment of the light aeroplanes for advanced training.

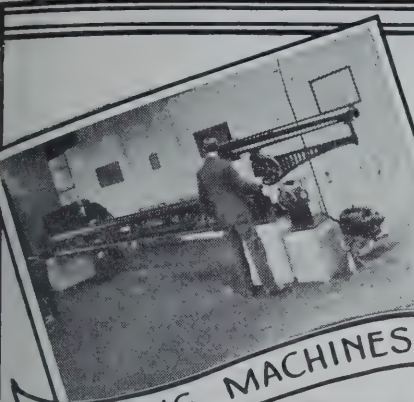
Owing to the limitations of the Budget the actual practice flying of pilots is limited to five hours per month. For the same expenditure flying can be carried out daily on a light aeroplane together with two hours' flying per month on a heavy aircraft.

Tests have been carried out at Helder Air Station with aeroplanes of the Holland type built by Mr. Carley and fitted with Anzani engines of 25 and 35 h.p. and very favourable results have been obtained.

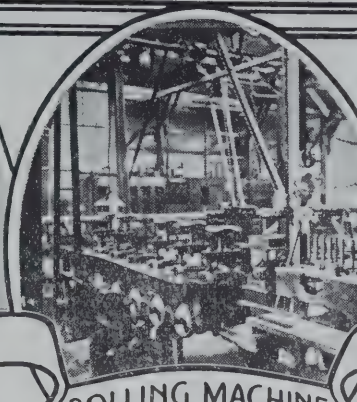
An Error of Statement.

In a paragraph headed "A Saunders Novelty" which unfortunately allowed to appear in this paper on September 29, certain statements of an entirely inaccurate nature concerning a new flying boat built by Messrs. S. E. Saunders were made.

It is therefore desirable to state that this particular machine cannot properly be described as of the F.5 type, that it has not a Vee-shaped bottom, although the F.5 hull has that characteristic, that the aerial structure is not purely F.5 type, and that, finally, the Air Ministry called for no modifications whatever during the construction of the machine.



TESTING MACHINES



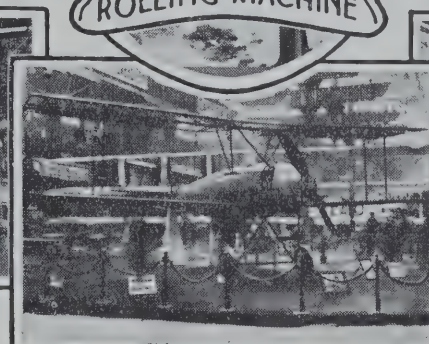
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CHEMICAL LABORATORY



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FOR many years Boulton & Paul, Ltd., have concentrated a large proportion of their unique technical resources on an investigation into the theory and practice of light metal construction.

As designers and manufacturers of aircraft, they have, during the last five years, applied the knowledge so gained to the production of metal aeroplanes.

The Boulton & Paul system of metal construction is the outcome of scientific research tempered by extensive manufacturing experience resulting in lighter, more reliable and more durable aircraft.

Further particulars and conditions under which licences to manufacture under this system are granted will be sent to genuine enquirers on application.

This advertisement is the last, and summarises a series of ten announcements which have appeared in this journal, dealing with the design and construction of Boulton and Paul Aeroplanes.

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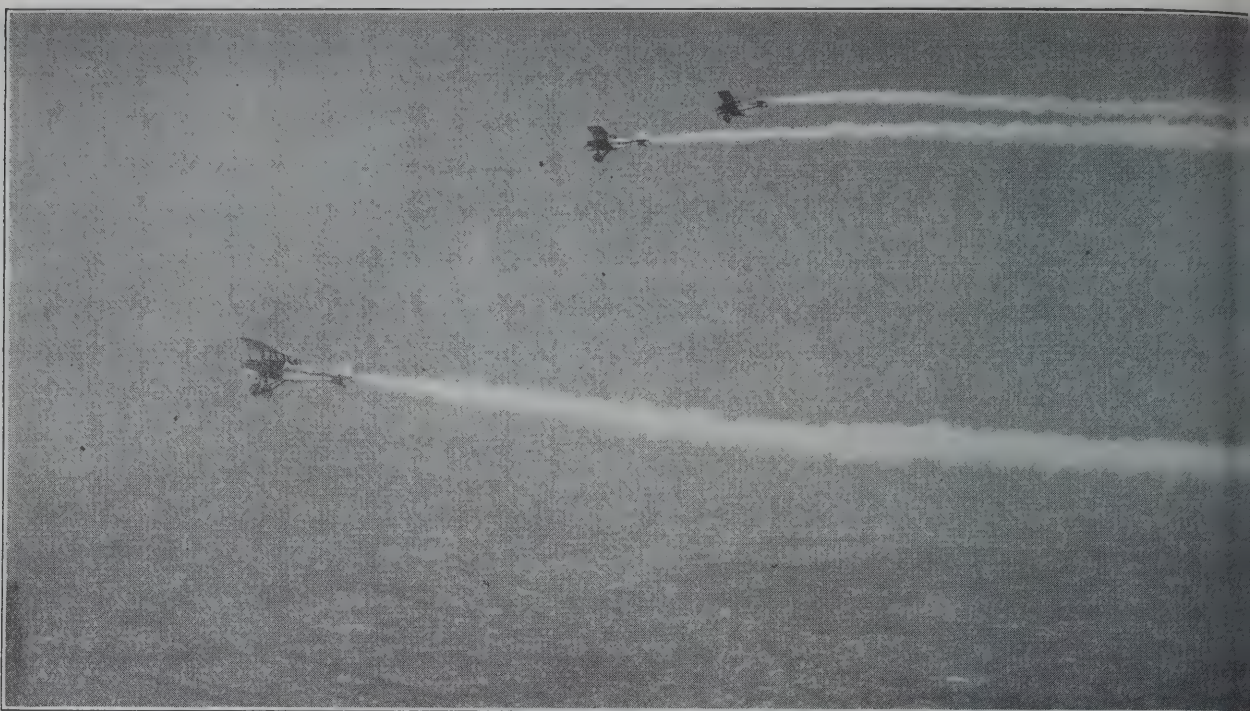
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SMOKE WITHOUT FIRE :—Here are seen three S.E.5a Skywriting machines, flown by Messrs. Cyril Turner, E. D. Herne and C. R. McMullin over New York. Major Jack Savage is the inventor and Lord High Everything Else in Skywriting which is one of the most potent forms of advertisement in the world. He is busily engaged on numerous contracts in this country and in America. Major Savage was manager to the late B. C. Hucks before the war and saved the taxpayer some millions of pounds by his handling of Kite-balloon supplies during the War 1914-18.

The North Pole Flight Fiasco.

During the latter part of last year and a portion of this, the newspapers wasted a lot of space concerning a proposal of Capt. Amundsen to fly over the North Pole. The influence of a man who had already discovered the South Pole apparently stood him in good stead, not only in newspaper publicity, but also in gathering around him a number of people willing to supply him with means of acquiring capital, in spite of the fact that in the previous year a similar attempt to fly over the Pole with a Junkers seaplane and a Curtiss "Oriole" presented to him by the Curtiss Company had failed.

Although Amundsen is a patriotic Norwegian he apparently attaches great importance to America, presumably for financial reasons, and whether in order to increase his prestige in that country or for some other reason unknown, he consented to the inclusion in his expedition of an American naval officer, one Lieut. Davidson, U.S.N., who was specially released by the U.S. Navy Bureau to act as pilot of one of his seaplanes.

At first two Dornier Wal flying boats, each to be equipped with 2 Rolls-Royce engines, were ordered from the Italian Dornier Co. Owing to the fact that the equipment was to be Italian in so far as construction was concerned, the Italian Government took an interest in the expedition and official permission was obtained to add a third machine to the expedition to be furnished by the Italian Government and to be piloted by Signor Locatelli.

In the meantime a big store in America started wholesale publicity for the expedition, indulging in full-page advertisements in the newspapers, radio talks, etc., and an ingenious scheme freely advertised in one of the newer American aeronautical journals was evolved whereby anyone could buy a specially printed postcard for which one paid a dollar and after addressing it to a friend or oneself would have it delivered or would receive it back specially franked after it had been taken over the North Pole by aeroplane.

The residue of this scheme after paying printing and publicity expenses would be handed over to Capt. Amundsen. It is reported that many thousands of the great American public bought these postcards.

His expedition then consisted of three Dornier flying-boats

to be piloted by a Norwegian, an American and an Italian pilot, respectively. His scheme was to fly from Spitzbergen to the North Pole. One seaplane would be left behind with its fuel transferred to another of the seaplanes which would continue its flight to Alaska, and the remaining seaplane would return to Spitzbergen with the crew of the abandoned seaplane.

Here international trouble started. It was obvious that the abandoned seaplane and the one that had to return to its starting place would not be the Norwegian-piloted Dornier.

On top of that Capt. Amundsen refused point blank to allow the Italian seaplane to carry the Italian colours. The Italian Government refused to let it carry any others and caused a deadlock.

Then financial troubles set in. Capt. Amundsen could not find sufficient funds to pay for the remaining two seaplanes, so the whole expedition was abandoned. The American Navy is pleased to be released, and the Italian Government used its machine to fly across the World, quite satisfied with having withdrawn before financial trouble made the whole thing look ridiculous.

The only people who are likely to feel annoyed are those thousands who purchased postcards and stand the chance of receiving their curiosities back, let alone the money, and sundry other persons unknown who may have contributed financially to the much advertised Polar Flight.

The whole thing shows the futility of trying to make an expedition with a species of League of Nations, for, as shown in the real thing, very little amicability can be expected where more than one nation is engaged in the vexation of a coral pimple or an ice-floe.

For Cold Weather.

If anyone would like to possess a thick flying coat, property of the late Sir Ernest Shackleton, and used by him on the campaign in North Russia, they are invited to write to THE AEROPLANE to make an offer for it. It is composed of a very thick khaki corduroy lined with sheepskin which is worked into the cloth and it has a fur collar. It is "British warm" length. The coat may be seen at the office of THE AEROPLANE.

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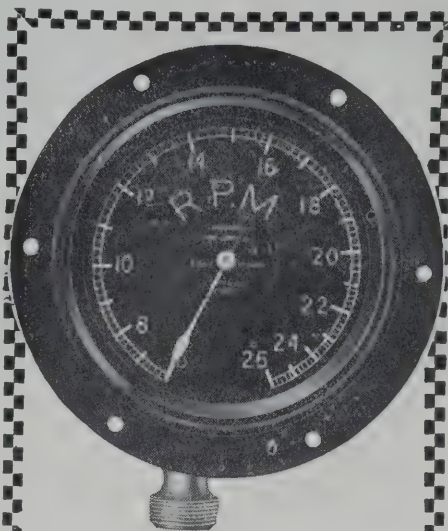
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK

Trips per Day.—Monday, 16; Tuesday, 19; Wednesday, 11, Thursday, 22; Friday, 18; Saturday, 18; Sunday, 9.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 65, passengers 307, freight 20 tons.

AIR UNION:

Paris—London: Machines 30, passengers 131, freight 9½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 12, passengers 40.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 4, passengers 4.

SPECIAL MACHINE:

DR. HAVILLAND HIRE:

Machines 2, passengers 2.

Total number of trips by British machines: 67, carrying 309 passengers. Foreign machines: 46, carrying 175 passengers.

Comparative Figures:

For week ending Oct. 5:

Machines 113; Passengers, 484; Crews, 142; Total personnel, 626.

Corresponding week, 1923:

Machines, 79; Passengers, 238; Crews, 108; Total personnel, 346.

Corresponding week, 1922:

Machines, 98; Passengers, 330; Crews, 159; Total personnel, 489.

Corresponding week, 1921:

Machines, 75; Passengers, 227; Crews, 98; Total personnel, 325.

Corresponding week, 1920:

Machines, 131; Passengers, 222; Crews, 152; Total personnel, 374.

Sir Sefton Brancker in Berlin.

The flying visit paid recently by Sir Sefton Brancker to Berlin and Dessau is stated to have yielded distinctly promising results, and it was felt at its conclusion that the removal of the Treaty restrictions on German flying had been brought appreciably nearer. At Dessau Sir Sefton Brancker had a long conversation with Professor Junkers, and afterwards he continued his journey to Prague to discuss questions of aerial transport with the Czecho-Slovak authorities.

In spite of the various forced-landings experienced on his return to England Sir Sefton Brancker arrived at Lympne direct from Ostend in time to see the opening of the Light Aeroplane Competitions.

Royal Aeronautical Society.

Official Notice:—The next lecture will take place at 5.30 p.m., on Thursday, Oct. 16, at the Royal Society of Arts, 18, John Street, Adelphi, W.C.2, when Dr. A. Rohrbach (of the Rohrbach Metall-Flugzeugbau Co.); will read a paper on "Large All-Metal Seaplanes."



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The Pulitzer Trophy Race.

A cable received from Dayton, Ohio, states that Lieut. H. H. Mills, U.S. Army Air Service, won the Pulitzer Trophy Race on a Verville-Sperry monoplane (500 h.p. Curtiss D.12 engine) at a speed of 216.55 m.p.h.

Lieut. W. H. Brookley, U.S. Army Air Service, was second on the 1922 type Curtiss Army Racer (500 h.p. Curtiss D.12).

Capt. B. E. Skeel, flying the second 1922 type Curtiss Army Racer, in diving on the starting line, was killed by the wing breaking away at 1,000 ft. altitude. The machine fell to a stone about a mile from the Grand Stand.

It is estimated that 50,000 people witnessed the race.

The race will be described in a subsequent edition of THE AEROPLANE by the Editor, who was present at the meeting.

American Zeppelin.

On Sept. 25 Z.R.3 left Friedrichshafen on its much postponed flight over Germany. The route taken was over Heidelberg, Darmstadt, Frankfurt, Hanover, Berlin and back to Friedrichshafen. The airship was greeted with wild enthusiasm in every town over which it passed.

Preparations are now advanced for its flight across the Atlantic. Her skipper will be Commander Eckener and her crew will amount to 28 officers and men. Four passengers will be carried consisting of members of the American Navy Commission.

Three U.S. warships will be stationed in the Atlantic. U.S.S. *Detroit*, 600 miles south of Cape Farewell, U.S.S. *Patoka*, the airship tender which is fitted with a mooring mast, 300 miles south of Cape Farewell, and the U.S.S. *Milwaukee* 250 miles east of Halifax. It is reported that U.S.S. *Detroit* is also to be fitted with a mooring mast.

Two routes are being considered, one over Hamburg, Glasgow and Newfoundland, and the other over Rotterdam, the southern coast of Ireland, and the Azores. It is believed that the latter course will be chosen.

Civil Aviation in South Africa.

It is reported that Mr. Boydell, Minister of Posts and Telegraphs in the new Government, is making a serious effort to urge the Cabinet to agree to embark on an air-mail service between Cape Town and Pretoria, which the late Smuts Government stopped after all arrangements had been made for a three-months' experimental service. The first grant will amount to £12,000 and the service will be confined to mail carrying until the confidence of the public is secured.

5th ANNUAL RE-UNION DINNER

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PRESIDENT:

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THE AEROPLANE

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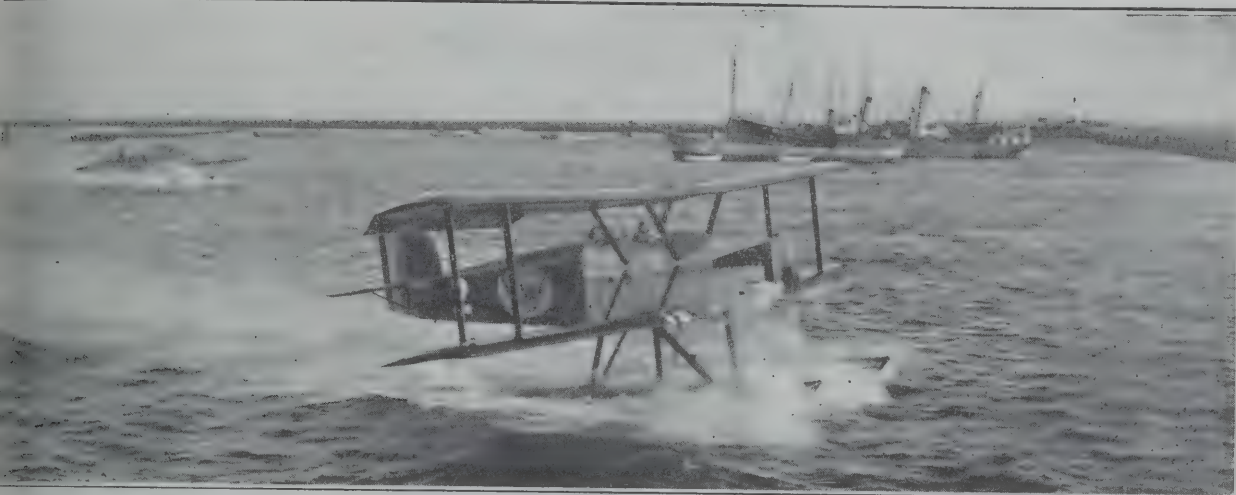
INCORPORATING AERONAUTICAL ENGINEERING
UNIVERSITY OF ILLINOIS

Edited by
C. C. GREGG

Vol. XXVII. No. 16. SIXPENCE WEEKLY.

[Registered at the G.P.O.
as a Newspaper.]

TO GREENLAND'S ICY MOUNTAINS.

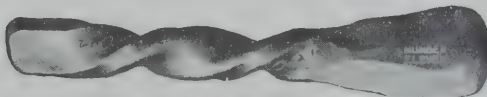


HOMEWARD BOUND:—Here is seen the departure of the U.S. Army aviators from Iceland on their flight to Greenland. They reversed the order of things as set out in the famous hymn by going first to India's Coral Strand (and incidentally surviving a banquet in our own Strand) and then going to Greenland before going from it. Everyone throughout the Empire will congratulate these great pioneers on the completion of their great flight and on a happy issue out of all their afflictions.

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First

In Grosvenor Cup

The Avro "AVIS," fitted with a Bristol "Cherub" engine, and piloted by B. Hinkler, won the Grosvenor Cup at Lympne on Oct. 4th, 1924. The machine covered the course of 100 miles in 1 hr. 31 min. 5 sec., averaging 65.89 m.p.h.

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ON A VISIT TO AMERICA.—I.

By C. G. GREY.

R.M.S. "Mauretania," Sept. 24, 1924.

has happened thus. For the past two years sundry groups of aviation who live in the United States and who like that between them the Nordic peoples have got to govern the Earth if it is to be passed as fit for human habitation have been doing their best to promote a cordial understanding between the aeronautical folk of America and those of Great Britain.

During the inter-tribal scrap commonly called The Great War, and more properly the War 1914-18, a number of very pleasant Americans came to England, some to sell aircraft and some to learn how to make aircraft and some to see how to run an air force. Also several millions of Americans who had nothing to do with aircraft came to Europe and won the war.

Now this, be it understood, is not the common cheap jest, but a statement of fact. Without those two million American troops behind us in France, Foch and Haig would never have been able to make the big attack in July 1918 which began to turn the War. And there are good soldiers who hold that not only the Americans, husky fellows trained to fight but the French, would have got away with the big push in the Argonne Forest which did so much to break the German at a critical moment. They say that veteran troops used trench war would never have faced that tree-to-tree fighting. Therefore America can honestly claim to have won the War as much as any of the other Allies.

Passing over the follies of the Versailles Treaty, and Mr. Lloyd George, and President Wilson's Fourteen Points, and the behaviour of the French in the Ruhr, and so forth, it becomes more and more evident as the years have passed that at the finish the World's future depends on America and England working together. And as aircraft must necessarily play such a big part in future history, both in peace and in war, it is desirable that the people concerned with aircraft in England and America should get to know one another better.

THE PERSONAL TOUCH.

Since 1918 a good many American aeronautical people have been in Europe, mostly in England, Germany and Holland, which countries, being the most Nordic, progress has been most marked. The Zeppelin airship firm has contracted an alliance with the Goodyear Rubber Company in America. Only Fokker has established a factory in the States under bilingual and bi-national lieutenant Robert Noorduijn. Rohrbach the German designer has allied himself with Beardmore firm in Scotland and has established a factory in Denmark. The German engineer Dornier has allied himself with another English firm. Other German engineers have established themselves in Sweden and in Northern (or Sicilian) Italy.

Mostly, and possibly most important, the Fairey Aviation Company, which has secured the biggest of the orders sent out by the British Air Ministry, has made arrangements to operate the American Curtiss Company's inventions in England.

During this period also sundry other people of importance in the British Aircraft community besides Mr. Fairey have been in America. Sir Sefton Brancker went to talk about Civil Aviation, Mr. Handley Page went to discuss slotted wings and biplanes. Squadron-Commander James Bird went to see about flying boats. And one heard of someone from Vickers being there, and various others.

Incidentally Mr. Glenn Curtiss, the great pioneer of racing in the States, was in England and Scotland in September having come all the way from Florida to Aberdeenshire to shoot grouse-birds, which may or may not have had something to do with aviation. According to one of his guests at the U.S. Embassy in London, aviation in Aberdeen is as it should be, for he said that the birds had gone home and refused to fly according to the rules of the game,

breaking back up-wind over the beaters instead of flying in formation down-wind over the butts. But that may be only the Scottish grouse-bird's way of showing its independence. However, that is by the way.

The fact remains clearly to be seen that a Nordic aeronautical alliance is well on the way, and that the leading aircraft folk of America, England, Germany, Scandinavia and Holland, which means all the Nordic people who count, are in fairly close personal touch. And yet the bulk of aeronautical communities of these countries know little enough about one another.

AN INVITATION.

A year or more ago it struck one Lester D. Gardner, who is the owner, moving Spirit and most other things of the leading American aircraft paper "Aviation," that someone ought to see both sides of the game and write about it for all to read. And in kindness of his heart he decided that THE AEROPLANE ought to undertake the work of enlightening those European Nordics who can read English. Consequently he did one the honour of inviting one to come to America and to see what there was to see.

Now, as everybody knows, British Aviation has been hanging on by the skin of its teeth for the past three or four years, because the Air Staff decided very properly that there was no sense in buying aeroplanes without having trained mechanics to keep them in order, and that money must be spent on barracks and training shops before it could be spent on aircraft. Consequently as the British Aircraft Industry has had no money THE AEROPLANE has not had any either. And so one had to write regretfully to Mr. Gardner and tell him frankly that one could not raise the steamship fare, let alone the cost of living at the American rate for sundry weeks in the United States.

The next move was a charming letter from Mr. Gardner saying that a wealthy American who is keenly interested in flying would like one to come over and be his guest from the moment when one arrived till one left. Naturally one felt very deeply the honour thus done to THE AEROPLANE. But one also felt that one could not review American Aviation in a properly impartial spirit if one went as the guest of America, so to speak.

Therefore one wrote to Mr. Gardner expressing appreciation of the kindness and asking him to ask his hospitable friend whether he had ever heard the story of the man who went into the theatre on a free pass and came out at the end of the first act and paid to go in again so that he could hiss with a clear conscience? The reply was what one expected from two such good sportsmen, a statement that the point of the story was appreciated and that something would be done to make it possible for one to work one's passage and earn one's keep.

Consequently a week or two ago a cable arrived saying that the necessary arrangements had been made. And so one finds oneself on the record-breaking Cunarder *Mauretania*, explaining to the long-suffering readers of THE AEROPLANE how it comes about that one is on a visit to America.

GLOBE TROTTERS' VIEWS.

Just by way of passing the time one has been endeavouring to pick up a few opinions of ocean-farers on the subject of air transport. By good luck one has been able to have a talk with Captain Rostron, the officer commanding the *Mauretania*, who knows more about the Atlantic and the people who use it than does any man living. And one has met sundry other intelligent folk whose views are worth having because of their experience of World Travel.

Captain Rostron foresees clearly the day when a series of big airships will cross the Atlantic regularly, carrying special mails and certain classes of goods and those passengers who can afford to pay for being in a hurry. But he has no fear of the big steamships being put out of business.

As he rightly argues, more and more people are learning to cross the Atlantic year by year. He points out that for one passenger who leaves the steamships to cross by airship there will be fifty new passengers for the steamships. Even at that rate he believes there will be in ten years' time or so quite enough air traffic to keep the airships busy. And as he says, the *Mauretania* can carry 3,000 people each trip; so quite a small percentage of the steamship passengers would mean good business for a number of airships.

So far as aeroplanes or seaplanes are concerned, he has little belief in them for trans-Atlantic traffic. Knowing Atlantic weather he does not believe that any heavier-than-air craft could live through a full gale. A head wind would make its progress so slow that it could not reach its objective before running short of petrol. But, he says, an airship with proper meteorological information can dodge round the storm area at the cost of spending a day or so more on the journey.

One confesses to being entirely in agreement with Captain Rostron. The aeroplane or seaplane must be content with shorter stages until such time as somebody produces some new form of power other than the internal-combustion petrol engine, with its enormous waste of potential power uselessly dispersed in cooling and other losses. The weight of fuel necessary for a long non-stop voyage in an aeroplane is too great in proportion to the paying load which it can carry.

Among one's fellow-passengers one found a fairly general interest in air transport. Several obviously wealthy Americans wished that an airship line existed which would take

them across in two and a-half or three days almost regardless of expense.

One or two intelligent American women wished they cross by air, partly to avoid sea-sickness—there has plenty of it in the *Mauretania*—the story of playing bill on these floating palaces is not precisely truthful, and dancing is a game of hazard rather than of skill on a that swings ten or fifteen degrees out of the horizon every twelve seconds or so. Also they said—women are practical—that it would be much nicer to go over the on the Newfoundland Banks than to blind through the dark, lying awake listening to the fog-horn and waiting for the bump.

A couple of Canadians (one from Winnipeg and one former R.A.F. Officer) from Vancouver recognised that that aviation could be in Canada if properly developed. They were quite proud of the good work done by the R.C.A.F. in forest patrols and survey work though they knew little of details. Apparently the Canadian Government does not do much to inform Canadian citizens about the R.C.A.F. is doing for them and for the very small amount of money which is voted for aviation by the Canadian Government.

A much-travelled Englishman from Shanghai was interested in the immense possibilities of flying in China, if the Chinese were not what they are. And even as they seem to think that the Europeans in China might advantage use aircraft for quick communication among themselves.

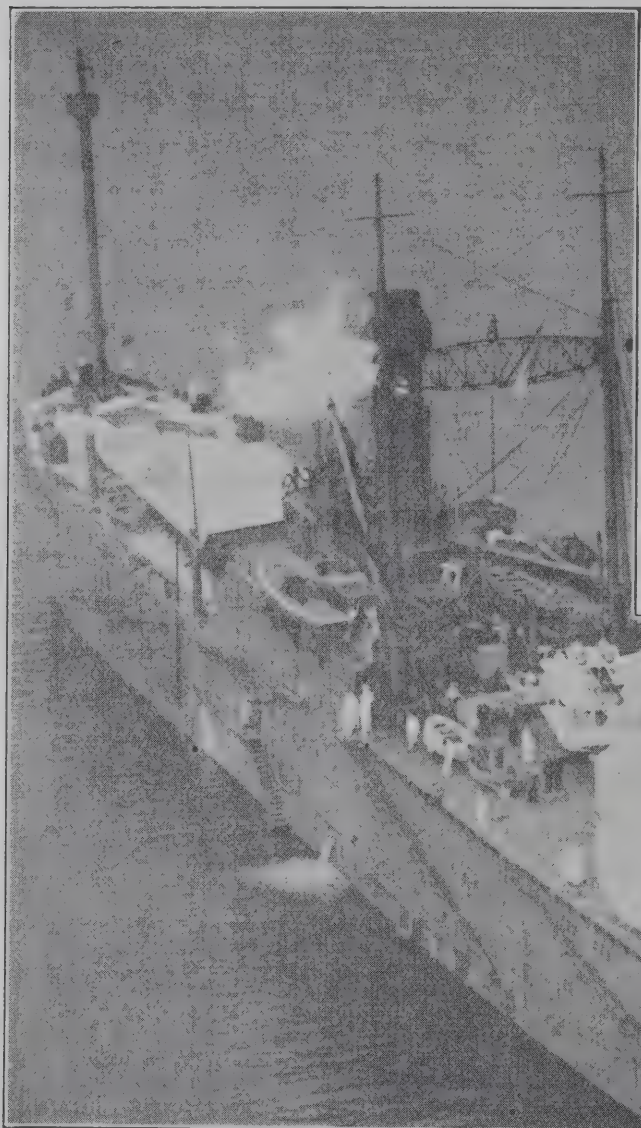
Altogether one found quite a reasonably intelligent interest in aviation among one's fellow-passengers. Undoubtedly the time the aircraft manufacturers and air-line operators of the World have produced and put in operation aeroplanes and airships which are as they ought to be, namely reasonably fool-proof and crash-proof such as *could* be built to-morrow and *will* be built a few years hence, the regular travel by public will be ready to use them.

These notes go to England by the first available mail ship arriving in New York. One hopes to include in this series of articles descriptions of the Pulitzer Trophy Meeting and the Schneider Trophy Meeting.

It is disappointing to learn in mid-Atlantic that our Schneider Trophy Meeting "hope" has been crashed. One wonders mildly why no spare machine was built at the time and why the whole of British prestige had to depend on the sportsmanship and enterprise of one firm, and why it has taken a year to build one machine when several could have been built in the time and all tested properly before it was necessary to ship them to America. Still it all happened in accord with English methods of muddling through.

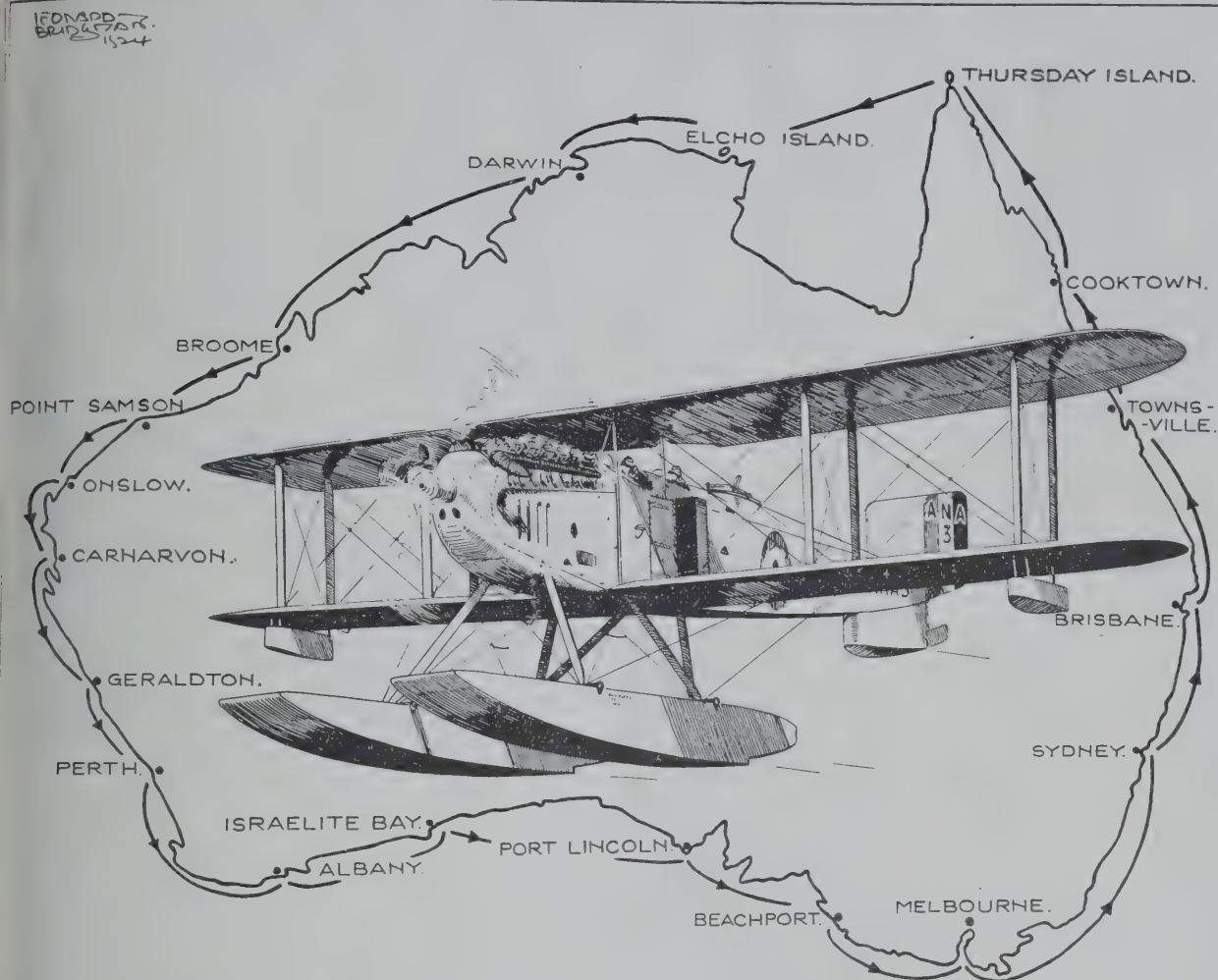
Presumably we shall recapture the Schneider Trophy some day.

(To be continued.)



A STRANGE CRAFT.—The Spanish Aircraft-Carrier ship *Dedalo* leaving Southampton after embarking a full load of Supermarine Light bomber amphibian flying boats.





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8,568 miles in 90 hours

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"The performance of the machine was absolutely excellent throughout. I have had a good deal of experience of seaplanes but this has far surpassed anything that I had expected. You know the old bogies about sun-warping of wings, yet, although the Fairey encountered heavy rains and was then very severely tested by going suddenly into the tropics, the wood spars and general rigging stood up to it perfectly. During the whole flight we never touched a wire on the rigging. Fabric, controls and everything else connected with the machine were perfect."

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THE ROYAL AIR FORCE.

The London Gazette.

Oct. 7.

GENERAL DUTIES BRANCH.—Flg. Off. W. F. Dry is granted a perm. comm. in the rank stated (Oct. 8); Plt. Off. H. P. Morris is promoted to rank of Flg. Off. (Aug. 13); Plt. Off. C. L. Moores is removed from the R.A.F., his Majesty having no further use for his services (Sept. 30).

STORES BRANCH.—Flg. Off. F. A. Burridge is granted a perm. comm. in rank stated (Oct. 8). The following Flg. Offs. are granted perm. comms. for accountant duties in rank stated (Oct. 8):—R. T. Carter, C. W. Price.

MEDICAL BRANCH.—D. Magrath, M.B., is granted a S.S. comm. as a Flg. Off. with effect from, and with seny. of, Sept. 24. The following Flt. Lts. are transferred to the Reserve, Class D.2:—R. G. J. McCullagh (Oct. 4); C. Y. Roberts (Sept. 21).

RESERVE OF AIR FORCE OFFICERS.—Class B: FLG. OFFS.—W. Allan. C. T. Robinson is confirmed in rank (Feb. 1).

The following are transferred from Class A to Class C:—FLG. OFFS.—E. N. Fenton (April 26); C. E. Jessell (Oct. 3); J. Baird, A. J. Bott, M.C., A. Mackenzie (Oct. 7). PLT. OFFS.—C. L. Atkinson, G. C. H. Dorman, C. A. McIntosh, C. Wilson (Oct. 7).

Appointments.

Week ending Oct. 14

GENERAL DUTIES BRANCH.—Flight Lieutenants H. V. German, to Reception Depot, West Drayton, on transfer to Home Estab., 28/10. G. E. Gibbs, to No. 14 Sqn., Palestine, 29/8. C. T. Anderson, D.F.C., to No. 2 F.T.S., Digby, on transfer to Home Estab., 19/9. Y. M. Yool, to No. 11 Sqn., Netheravon, on transfer to Home Estab., 10/10. M. Moore, O.B.E., to Aeronautical Committee of Guarantee, Germany, 1/10. G. O. Venn, to No. 5 Sqn., India, 3/10.

Flying Officers W. J. Walsh, to R.A.F. Depot on transfer to Home Estab., 24/10. B. J. O'Connor Hanstock, to School of T.T. (Men), Manston, 8/10. W. J. M. Akerman, to remain at No. 4 Sqn., S. Farnborough. F. E. Nuttall, to A.A.E.E., No. 22 Sqn., Martlesham Heath, 17/10. A. R. Jones, to R.A.F. Depot, 10/11. C. Walker, to Boys' Wing, Cranwell, on transfer to Home Estab., 17/10. A. Neeson, to R.A.F. Depot on transfer to Home Estab., 12/10. L. A. C. Stafford, to I.A.A.D., Henlow, 2/10. T. McM. Shields and A. F. McC. Riggs, to R.A.F. Depot, 1/10.

Pilot Officer E. R. Newbigging to No. 5 Armoured Car Co., Iraq, 12/9.

MEDICAL BRANCH.—Flying Officers (Medical) C. J. MacQuillan, M.B., B.A., and F. P. Schofield, M.B., to R.A.F. Depot, 6/10. A. Harvey, M.B., to Research Laboratory and M.O.S. of I., Hampstead, for short course on appointment to a S.S. comm., 7/10.

STORES BRANCH.—Wing Commander (Accountant) H. J. Down, to H.Q., Inland Area, 5/11. Squadron Leader (Accountant) P. J. Wiseman, to Command Accounts Office, Palestine, 23/9. Squadron Leader (Stores) F. G. M. Williams, to No. 1 Group H.Q., Kidbrooke, 1/11. Flying Officer (Accountant) R. G. D. Thomas, to No. 208 Sqn., Egypt, 19/9.

CHAPLAIN'S BRANCH.—The Rev. G. L. Robinson, D.S.O., to No. 4 F.T.S., EGYPT, 30/9.

Lord Thomson on the Middle East.

In an interview at the Air Ministry on Oct. 10 Lord Thomson, the Secretary of State for Air, described his visit of inspection to the Air Force Units in the Middle East. Lord Thomson left London on Sept. 17 and travelled overland to Alexandria. His real inspection started the following day when he visited the R.A.F. Station at Aboukir. From there he flew to Heliopolis just outside Cairo, the jumping-off aerodrome for the trans-desert route.

He left Heliopolis in a Vickers Vernon escorted by two other Vernons. The machines were equipped with wireless and Lord Thomson was accompanied by a Staff Officer and his Secretary, Mr. C. Ll. Bullock, O.B.E., and two pilots.

The first landing was made at Amman where he dined with the Emir Abdullah of Transjordan. The next landing was made at Ramadi and on Sept. 25 the expedition with six escorting Vernons landed in formation on the aerodrome at Baghdad.

Lord Thomson was most enthusiastic about the speed and comfort of his trip and said that with the exception of a slight giddiness when coming down from the cold air at 6,000 feet into the heat when landing he had enjoyed every minute of it.

In Baghdad he visited the R.A.F. Units and lunched with the High Commissioner. On Sept. 27 he flew to Mosul and from there to Zakho, Erbil, Rowanduz and Kirkuk in a D.H.9a. On leaving Zakho a flying wire broke and the pilot turned back.

He described the administration, organisation and efficiency of the R.A.F. as magnificent and said that it would be impossible to say too much about it. He added that it was unnecessary to lay stress on the keenness and efficiency of the pilots and mechanics as this was well known.

At Kirkuk Lord Thomson saw a regiment of Iraq Levies under Colonel B. T. Lawrence, V.C., formerly of the 18th Hussars, which he described as one of the finest mounted regiments he had ever seen.

On Sept. 29 he flew to Sulaimanieh where he interviewed three native delegations. Lord Thomson said that previous to the British occupation of Iraq practically the whole popu-

lation of Sulaimanieh had been driven out into the desert by a turbulent Sheik and that out of 20,000 only 700 people had been left. At the present moment, under British protection there were 12,000 people living in peace and apparent prosperity.

At this point Lord Thomson said a few words about Iraq. Speaking as a soldier he said that a bomb was a more discriminate weapon than a shell and that in the atmosphere of Iraq it was very easy indeed to spot a target. He said that it was not so much the actual damage done by the bomb that put the wind up the aggressor it was the uncomfortable sensation of an all-seeing eye.

On Sept. 29 Lord Thomson returned to Baghdad accompanied by H.M. King Feisal. On the following morning started on his return journey landing at Amman for the night.

On Oct. 1 he arrived at Rameleh and motored to Jerusalem for an interview with the High Commissioner of Palestine. Lord Thomson was particularly impressed by the scenery in the last stage of his journey. He left Government House on the Mount of Olives at 05.00 hours on Oct. 2 and motored to Rameleh. He flew to Heliopolis for tiffin, reached Cairo in the afternoon and arrived at Alexandria in time for a number of interviews before dinner. Lord Thomson said that even after the longest journey by air he did not feel in the least fatigued and was able to inspect troops, quarters and interview delegations whereas the same journey of hours in any other conveyance would be completely exhausting.

Lord Thomson emphasised the fact that with the exception of the broken flying wire on the machine in which he started from Zakho no mishap of any kind occurred during the whole of the tour. This record referred not only to the machines actually engaged on the tour but also to the machines which acted as escorts both on arriving and on leaving every aerodrome at which R.A.F. Units were stationed.

A Report Denied.

The following statement was issued by the Air Ministry on Oct. 8:—

The Air Officer Commanding Iraq Command, reports that there is no foundation for the statement recently published in Constantinople that a British aircraft was brought down by the Turks and two airmen were captured.

The R.A.F. Memorial Fund.

The total number of grants made by the fund during the period from June 25 to Sept. 29 was 125 (exclusive of 10 officers) and the total sum involved £1,661 12s. 9d. The assistance given to members of the post-war R.A.F. amounted to £182 17s., chiefly in very small sums.

Air Affairs in Parliament.

MISSING OFFICERS, IRAQ.

MR. GALBRAITH, on Oct. 8, asked the Under-Secretary of State for Air whether any information has been received with reference to Plt. Off. Stewart and Flt. Lt. W. S. Day, who were recently reported missing in the Iraq desert; and what further steps it is proposed to take in order, if possible, to ascertain what has happened to them.

MR. LEACH: I regret that despite exhaustive search by armoured cars, mounted police and some tribal patrols, which continued almost unceasingly for four days following their disappearance, no trace of the two officers could be found, apart from footprints in the immediate vicinity of their aeroplane. This search was abandoned on the fourth day. Police and special service officers have since continued to prosecute inquiries in the villages, but no trace has been obtained, and it is feared that the officers have lost their lives. A Court of Inquiry has been held, and its proceedings are now awaited. It is expected that these will show that every possible step has been taken to trace the missing officers.

ARMAMENT EXPERIMENTAL STATION, ISLE OF GRAIN.

SIR G. HOHLER, on Oct. 8, asked the Under-Secretary of State for Air whether it is proposed to close the marine armament experimental establishment in the Isle of Grain; and, if so, whether in view of the fact that it is an essential station in case of air raid on London and vital to the defences of the Thames and Medway and the naval yards of Chatham and Sheerness, and also admirably situated for air practice and bombing owing to its proximity to the rivers and the sea, he will consider, before taking any step to close the station, whether it would be more economical to retain it, to remove it, having regard to the expense already incurred.

MR. LEACH: The establishment referred to has already been closed and the experimental work previously carried out there transferred to other stations. The decision to close the station was reached after careful consideration of all aspects of the question, including those mentioned by the hon. Member.

R.A.F. Boxing at Basrah.

The following is extracted from the *Times of Mesopotamia* with acknowledgments:—

The results of the R.A.F. Boxing Tournament, held at Makin on Sept. 19, were as follows:—

CHAMPIONSHIPS.

Light Heavy—Cpl. Davis, Stores Depot; Middle—Cpl. Davis, Stores Depot; Welter—AC.1. Meyrick, No. 3 Armoured Car Coy.; Light—Cpl. Davis, Stores Depot.

ARMSTRONG SIDDELEY

Aircraft Engines.

Stages in Progress.

THERE is no more rigid or thorough test for an engine than the Type Tests carried out under supervision of the Aeronautical Inspection Department of the British Air Ministry. Three times has the Armstrong Siddeley

"JAGUAR" Air Cooled Radial Engine

been submitted to this test and come out triumphant:—

June '22, Series II "Jaguar," 325 B.H.P., 50 hrs.

March '24, „ III "Jaguar," 360 B.H.P., 50 hrs.

August '24, „ IV "Jaguar," 385 B.H.P., 100 hrs.

It will be noted that in addition to the high speed and maximum power tests the duration of the latest test was 100 hours. The "Jaguar" Air Cooled Radial is

**the first and only aircraft
engine to fulfil this test.**

Other Achievements.

Farthest North. Oxford University Expedition North Eastland. Avro Aeroplane fitted with "LYNX" Engine beat Farthest North flying record—80.15.

London to Africa. Mr. Alan J. Cobham flew from London to Tangier and back in a D.H.50 fitted with an Armstrong Siddeley "Puma" Engine—3,000 miles in 28 hours actual flying time.

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Cook, 84 Sqdn.; Feather—A.C.1. Moses, 84 Sqdn.; Bantam—I.A.C. Radcliffe, 84 Sqdn.; Fly—A.C.2. Wiggins, Stores Depot.

INTER-UNIT NOVICE COMPETITION.

Light Heavy—A.C. Hague, Stores Depot; Middle—I.A.C. Winterburn, Stores Depot; Welter—A.C. Marnock, No. 3 A.C.C.; Light—A.C. Mather, No. 3 A.C.C.; Feather—I.A.C. Hutkinson, 84 Sqdn.; Bantam—Cpl. Fulkner, Stores Depot; Fly—A.C. Wiggins, Stores Depot.

The Boxing took place on Sept. 18 and 19 in No. 3 A.C. Coy. lines and accommodation for 750 people was arranged.

The officials were as follows:—Referee, Flt. Off. A. E. F. McCreary; Timekeeper, Flt. Lt. H. G. Bowen; Judges, Major Atkins, Flt. Lt. MacDonald, Obs. Off. A. Lees, Flg. Off. Bramwell Davies, M.C., Flt. Lt. H. W. Capener; Chief Whip, S-Mr. Goddard; Ring Master and Clerk of Scales, S-Mr. Wellington; Recorders, F-S. Darke, Sjt. Steward; Official Seconds, Blue Corner, Sjt. Currie; Red Corner, Sjt. Richards.

Group Captain Courtney, C.B.E., who was heartily cheered, presenting the prizes to the winners at the conclusion of the Group Boxing Tournament on Sept. 19, congratulated the competitors on the very clean fighting they had exhibited. Boxing he assured them hurt nobody, though they might feel sore for a day or so. He was very glad to notice a great increase in the number of entries and he was only sorry Group H.Q. had no representatives. Flt. Lt. McCreary, the referee, had put up a very good show. Thanks were particularly due to the Armoured Car Coy., who were responsible for the arrangements. Flt. Lt. Bowen, Flt. Lt. McDonald, and Flg. Off. Bramwell Davies had made possible the successful evenings' sport they had witnessed and he thanked them accordingly. He was particularly glad to be present at the debut of the R.A.F. Stores Depot Band. The A.C.C. had won the R.A.F. Boxing Championship Cup. They had arranged for replicas of the Challenge cups to be presented annually so that every unit who won the cup would have a memento. He hoped that now the novices had become experts they would lend a hand at training up the young idea coming out by the next trooper. He also took the opportunity of presenting 3 Armoured Car Coy. with the Group Cricket Cup which they had just won.

"The Airman."

The seventh number of the third volume of *The Airman*, the quarterly magazine of the R.A.F. at Manston, has just appeared.

Preparations for the Schneider Cup Race.

Although the Schneider Cup seaplane race is robbed of much of its interest by the withdrawal of the British and Italian entries, it will still be run at Baltimore on Oct. 25 but solely as a race for U.S. Naval pilots on high-speed seaplanes.

The two Curtiss Navy Racers that scored first and second places in last year's race at Cowes have already been tested at Philadelphia. One of them flown by Lieut. G. Cuddihy made a top speed of 197.6 m.p.h. on Sept. 4 and on the previous day at the same place Lieut. R. A. Offstie succeeded in making 190 m.p.h. on the same machine. These are roughly the speeds made by these machines in their preliminary tests in the United States last year.

The other two entries about which one has heard little are two of last year's Naval Pulitzer Trophy racers. One, the Curtiss R.2.C., on which Lieut. A. J. Williams broke the World's speed record at 266 m.p.h., has been flown as a seaplane by Lieut. D. Rittenhouse, and on its first flight made an average speed of 227.5 m.p.h. over a 30-km. course. When it made this flight there were many small details of streamlining and tuning-up to be attended to, so that it is safe to assume that the Curtiss R.2.C. seaplane when ready for the race, will be able to touch 240 m.p.h. on the straight.

The other entry is one of the Wright racers, two of which won third and fourth places in the Pulitzer race last year at an average speed of 230 m.p.h. Lieut. A. W. Gorton, who suffered misfortune while flying a Wright seaplane in a preliminary test off Southsea last year, is flying the new Wright seaplane, but so far no figures have been received as to its actual performance on floats.

Lieut. F. W. Mead, who was in charge of last year's Schneider Cup team has fulfilled a similar duty this year, and the T.R.3 seaplane which was an alternate entry last year but which failed to get away owing to engine-starter trouble, has been used by this year's team as a practice machine.

In addition to the navigability and seaworthiness tests which will take place on Oct. 24 and the actual Schneider Trophy race which will be run on the following day, there will be four other events for seaplanes.

On Oct. 24 there will be a handicap race for the Baltimore Sun Trophy open to civilian seaplanes and flying boats and a race for torpedo aircraft of the U.S. Navy Scouting Fleet.

On Oct. 25 there will be an air demonstration of all types of naval aircraft and on Oct. 26 a straightaway speed contest will be held over a special 3-km. course installed at Bay Shore Park.

The Editor will be present at Baltimore for these events so a full description of the meeting will appear in this paper in due course, together with photographs (more or less) after his own inimitable style.

The Z.R.3 Atlantic Flight.

At 06.35 hours on Oct. 12 the Z.R.3 left Friedrichshafen on her flight of delivery across the Atlantic to the American

The frontispiece is a photograph of Group Capt. A. L. God C.M.G., D.S.O., who has commanded the Station since July. Cmdr. Landon, D.S.O., who had commanded Manston from Oct. 1921, was posted last July to the Air Ministry.

This number of *The Airman* contains a short history of No. 9 Sqn. based on facts supplied by the Air Ministry and the usual amount of station sport.

The Cadet College Magazine.

A former Major of Sappers who drifted by accident into the ranks of THE AEROPLANE a few weeks ago proceeded to demonstrate certain members of the Staff that the R.A.F. ought to do with the R.A.F. Cadet College, Cranwell. He thought that the Boys' Wing at Cranwell and the School of Technical Training at Halton, were quite equal to supplying all instead of a small portion of junior officers to the Service. The creed of THE AERO which begins "I believe in the Royal Air Force," was in no way shaken by the former Major of Sappers, who left his audience interested, slightly amused and wholly unconvinced, which is an effect that Sappers have on some people.

Apart from other forms of usefulness the R.A.F. Cadet College produces a very good magazine, the summer number of which has just been published and starts with a perfectly beautiful photograph taken by the R.A.F. Photographic Section of a Vickers Victoria flying over the pyramids at Gizeh. Another example of what can be done with a camera is a study of a fishing fleet with an article by Sq. E. C. Williams describing how it was faked from a nondescript film.

One of the most interesting things about the Cadet College Magazine is that former Staff and Cadets stationed overseas continue to contribute to it. "Three Frontier Sketches" are an example of as they are obviously written by a man who knows the country and conditions of which he writes.

Flt. Lt. E. H. Robinson (late R.A.F.), who won the King's Prize for Bisleigh in 1923, has written a short article on rifle shooting for the number, and Flt. Lt. R. A. Cochrane has described life in Iraq from the benefit of those who are likely to go there in spite of the heat.

There is plenty of Cranwell sports news and photographs and humorists as usual have a good innings.

Government. The departure of the airship was the signal for a wild burst of enthusiasm on the part of the huge crowd of spectators. Owing to the mist the airship was soon lost to sight.

At 07.00 the ship passed over Constance flying in a southerly westerly direction up the Rhine, and at 08.00 hours it passed over Basle. Subsequent wireless messages recorded its passage over Montbeliard S.W. of Belfort at 08.45 hours, Loire river at 11.45 hours, Limoges at 13.00 hours.

At 15.30 hours it was reported to be over the mouth of the Gironde passing out to sea.

In traversing the distance between Friedrichshafen and Bay of Biscay the Z.R.3 covered 594 miles or one-seventh of the distance to America at an average speed of 66 m.p.h. at which speed she should reach the American coast in 5 hours.

At 18.00 hours she was reported to be 156.5 miles south-west of the French coast and another message said that at 20.36 hours the airship was crossing Cape Ortegal in the province of Corunna, which indicated that she was following the original southern route over the Azores.

A message received at 04.00 hours on Oct. 13 stated that the airship was on the Cape Ortegal-Azores course, and the crew and ship were in the best condition. At 11.30 hours it was reported that the ship was due over the Azores at midnight and that she was in touch with the American wireless stations at Marion and Chatham.

A telegram received in Berlin at 18.50 hours reported that the airship had passed over Fayal at 14.00 hours, and she was in constant touch with Annapolis wireless station and was receiving full weather reports. It is expected that the Z.R.3 will arrive at Lakehurst Air Station at 09.00 hours on Wednesday morning. Preparations are being made to substitute helium gas for hydrogen as soon as the Shenandoah returns to Lakehurst and until that has been done no visit will be permitted on board.

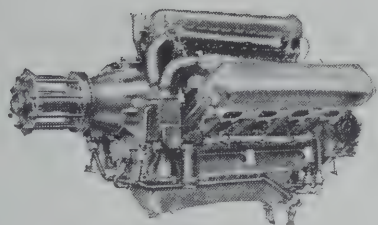
The U.S. Navy's supply of helium gas is nearly all contained in the Shenandoah which is at present engaged in the double crossing of the United States and as it is out of question to manufacture a fresh supply of gas owing to lack of funds from Congress the Z.R.3 will have to have some of the Shenandoah's gas transferred to her.

British Interest in the Z.R.3.

It has been reported in *The Times* that Group Captain Fellowes, Director of Airship Development at the Air Ministry, has recently returned from Friedrichshafen, where with his chief designer, he was afforded every opportunity of inspecting and examining the new Zeppelin airship Z.R.3.

Group Captain Fellowes left this country by air for Cologne many on Sept. 21, and has spent considerable time in discussing airship problems with Dr. Eckener, the head of the Zeppelin organisation, and with Herr Leimann. The purpose of their visit was facilitated in every way by Commander Fulton, of the United States Airship Department.

Commander Burney, M.P., has also paid a flying visit to Friedrichshafen to witness the trials of the Z.R.3.



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A Fairey Seaplane Ambulance.

A Fairey III D. seaplane with a 360 h.p. Rolls-Royce Eagle IX has been fitted out as an ambulance for operation in British Guiana.

It will be remembered that Major Hemming, of the Aircraft Operating Company, recently went to Georgetown in British Guiana to examine the possibilities of running an air line up the river Mazaruni. The present means of communication to the furthest point of the industrial production centres is 200 miles and by existing transport this takes seventeen days. The aeroplane will occupy only two hours over the journey.

In addition to the pilot the machine has accommodation for one stretcher case and attendant with iced drinking water and ordinary medical supplies and it is equipped with wireless gear. When desired it can be converted rapidly for carrying passengers or supplies. A Fairey-Reed duralumin airscrew will be used as it is suggested that this will weather the climate better than will a wooden airscrew.

The personnel have been trained in the Fairey Works and the Chief Pilot will be Captain G. N. Trace, late R.A.F., who tested the machine successfully during the week-end.

All-Metal Seaplanes.

To-morrow, Thursday, Oct. 16, at 5.30 p.m., Dr. Ing. A. Rohrbach will read a paper on Large All-Metal Seaplanes before the Royal Aeronautical Society at the Rooms of the Royal Society of Arts, John Street, Adelphi.

Dr. Rohrbach was the designer of the large metal aircraft built during and after the war by the Staaken Works of the Zeppelin Company. Since it has become impossible to produce large machines in Germany he has continued the development of large machines in Denmark, where he has produced a large and very successful duralumin flying boat. His lecture will be illustrated with photographs of this machine, both under construction and under trial at Copenhagen.

The Rohrbach machines are notable for the novel and simple methods of construction which are employed, and the lecture will be the more interesting in that the manufacturing rights for his system of construction in the British Empire have been acquired by the famous Beardmore firm, who are now preparing to manufacture all-duralumin aircraft of this type.

The Shenandoah's Long Flight.

The U.S. rigid airship Shenandoah left Lakehurst, N.J., on Oct. 7 for a test flight involving the double crossing of the United States, a distance of 7,000 miles.

Throughout the flight the airship will remain in the air, depending solely on mooring masts for anchorage.

The airship is carrying a crew of 37 under the command of Commander Z. Lansdowne, U.S.N., and Rear-Admiral Moffett, Chief of the Naval Bureau of Aeronautics, is making the trip as passenger.

On Oct. 8 the ship arrived at Fort Worth, Texas, at 19.25 hours, 34 hours after leaving Lakehurst, N.J. After remaining moored to a mast all night she left for San Diego, Cal., the next morning.

On the evening of Oct. 9 the Shenandoah was observed passing over the western border of Texas and on Oct. 10 it was reported that the ship narrowly missed disaster when flying over the Picacho Peak near Tucson, Ariz., which she missed by roughly 15 feet.

At 22.28 hours on Oct. 10 the Shenandoah arrived at San Diego and in being moored to the mast in the dark sustained some damage to the rear gondola.

The American Duration Flight.

On Oct. 10 a C.S.2 seaplane (650 h.p. Wright engine) succeeded in remaining in the air for 20 hours 28 mins, at Quantico, Virginia, thus exceeding the record made on July 11-12, 1924, when Lieuts. Wead and Price, U.S.N., on the same type of aircraft remained in the air for 14 hours 53 mins.

During this new flight the C.S.2 covered a distance of 1,500 miles at an average speed of 73 m.p.h.

The C.S.2 is an officially-designed, Curtiss-built, long-range scouting seaplane, fitted with the Wright T.2 engine and wing radiators. It is a development of the C.S.1 three-purpose convertible land or seaplane, designed to act as either a naval scout, torpedo-carrier or bomber.

THE GLOBE TROTTERS.

THE ARGENTINE EXPEDITION.

On Oct. 9 Major Zanni and Signor Beltrame who are attempting to fly round the World on Fokker-Napier equipment left Shanghai for Kagoshima where they arrived at 16 hours.

On Oct. 10 they left Kagoshima for Kushimoto arriving the latter place at 11.33 hours.

On Oct. 11 they left Kushimoto and arrived at the Navy Air Station at Kasumigaura near Tokyo at 11.57 hours the same day.

THE AMSTERDAM-BATAVIA FLIGHT.

It has been reported that the Fokker F.VII on which M. Van der Hoop was attempting to fly from Amsterdam to Batavia Dutch East Indies has been damaged at Phillippolis so that the flight may have to be abandoned. During the flight from Belgrade to Constantinople, the radiator sprung a leak, the engine seized and in making a forced landing the undercarriage was badly damaged. As there is no spare F.VII to replace the damaged machine a continuation of the flight is very improbable.

THE ITALIAN EXPEDITION.

Later reports concerning Lieut. Locatelli's landing in the Atlantic on his attempt to fly from Rome round the World disclose the fact that thick fog was the sole reason for his forced landing.

After losing touch with the American expedition he ran into thick fog and for fear of running into icebergs or the cliffs of Greenland he was obliged to fly high. The fog came so thick that the pilot was unable to see the occupant of the rear cockpit and it was decided to land. On nearing the sea it was found to be very rough but by that time the seaplane had nearly lost flying speed and it was forced to land. When the fog had lifted an attempt was made to go off but without success.

On the following day an attempt to start the engines was made but the mechanics were too weak owing to violent attacks of seasickness. On the third day the engines were started but the fog again descended and the attempt to go off was abandoned.

On the third night the Dornier seaplane was found by the U.S.S. *Richmond*. The sea was too rough to launch a small boat and in getting the Dornier alongside to take off the crew the machine was badly damaged and had to be abandoned.

Lieut. Locatelli and his assistant pilot Lieut. Crosio have taken turns for three days in keeping the seaplane head into the wind, and the Dornier survived the three days of the rough sea very satisfactorily.

This account contradicts previous reports to the effect that they were forced down with engine trouble.

Throughout the flight the two Rolls-Royce Eagle engines had given no trouble whatever, the abandonment of the flight being due solely to fog and rough sea.

PERSONAL NOTICES.

DEATHS.

GUNNING.—On Oct. 6, at Mentone, through a motor accident, Henry R. Gunning, late Capt., R.A.F.

ST. GEORGE-TAYLOR.—On Oct. 9, at Netheravon, while flying, Harold St. George-Taylor, Pilot Officer, R.A.F., eldest son of L. St. George-Taylor, of Asuncion, Paraguay, aged 25.

FORTHCOMING MARRIAGE.

BUSCARLET-MONTAGUE.—The engagement is announced between Lt. Willett Amalric Bowen-Buscarlet, Royal Artillery, R.A.F., son of Mr. and Mrs. F. C. Buscarlet, of Newcastle-on-Tyne, and Violet Mary, daughter of the late Mr. John Monthermer Montague and Mrs. Montague, of Broom Hill, near Barnstaple.

MARRIAGE.

DOYLE-BURD.—On Oct. 7, at Zeal Monachorum, Capt. J. E. Doyle, D.F.C., to Grace Vera Burd, youngest daughter of Dr. and Mrs. G. V. Burd, of Okehampton.

BIRTHS.

GRAHAM.—On Oct. 1, at Rushall Hall, Walsall, the wife of Ldr. Ronald Graham, D.S.O.—a daughter.

YOUNG.—On Oct. 7, at 115, Willifield Way, Golders Green, Hylda, wife of Sq. Ldr. Peter H. Young, R.A.F.M.S.—a daughter.

CONDOLENCE.

UNWIN.—Sq. Ldr. and Mrs. Unwin desire to express their thanks to all friends for their kind letters of sympathy.

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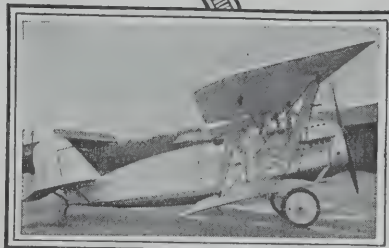
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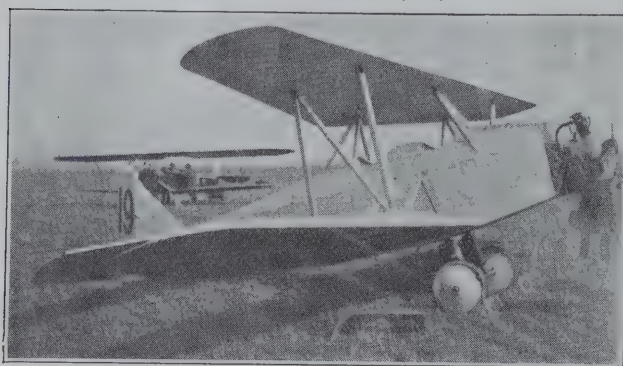
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EXHIBITORS IN THE PALACE OF ENGINEERING, BRITISH EMPIRE EXHIBITION.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

A REVIEW OF MACHINES AND ENGINES AT LYMPNE.

Sq. Ldr. Douglas' Parnall Pixie III (right) and Mr. Hinkler's Avro Avis (left).



THE WEE BEE.

Apart from the effect of rules, the machines themselves may be regarded as thoroughly satisfactory. The Beardmore Wee Bee, with a speed range of from 40 to 85 or so m.p.h., an astonishingly quick take-off and a really remarkable climb, must be regarded as one of, if not the most, astonishingly efficient aeroplanes yet produced. And with it all, it is evidently amazingly controllable. It did not of course receive credit in the contest for a speed higher than 70.11 m.p.h., but in its last two flights it was lapping at between 79 and 80 m.p.h., so that its true level speed must be some 5 m.p.h. or so higher than the lap speed. This is scarcely the performance expected by the best pessimists for an 1,100 c.c. two-seater. Moreover the machine is of simple and robust construction, and would certainly not be expensive either to produce or to keep in repair. Altogether, the Wee Bee reflects the very greatest credit on Mr. Shackleton, its designer, on the Beardmore firm who recognised his abilities and gave him the opportunity of producing it, and on Mr. Percy, the pilot, Mr. Baxter, who was in charge of the engine, and on the whole Beardmore crew at Lympne.

THE BROWNIE.

The Bristol Brownie is another remarkably efficient aeroplane. Capt. Barnwell seems to have produced for very nearly the first time a low-winged monoplane which is absolutely devoid of any trace of vice, even at stalling speed. No one who watched carefully Mr. Uwins' slow speed tests can have any doubt as to the effectiveness of all the controls of the machine, and the fact that in his last attempt the biggest difference between two runs in the same same direction was one-fifth of a second is very excellent confirmation of this fact.

The performance of the machine is excellent, and the official figures for her unsticking and resticking tests shows that the machine can be taken off from or landed in a ridiculously small field. The view from both seats is excellent, and one understands that in future it will become even more excellent owing to a slight modification in the shape of the front half of the fuselage.

THE HAWKERS.

The two Hawker Cygnets flown by Raynham and Longton deserve special notice, despite the ill-luck which attended them. Their get-off and landing performances were wonderful—probably actually the best of the meeting. Raynham's speed on his first five laps on the last day was nearly 75 m.p.h., or, say, 80 m.p.h. maximum air speed, with a slow speed of 36, and must be regarded as phenomenal for a biplane. Longton's exhibition of crazy flying at the end of the meeting was evidence of the controllability of the machine, and altogether it is difficult to see in what respect the present standard type of training machine with 100 h.p. is superior to the Cygnet with 30 h.p. But, of course, the Cygnet wants an engine that will keep on giving the 30.

THE AVRO.

The Avro Avis looks to be at least as good as the Cygnet, though probably its performance is a little lower down the speed scale than that of the Hawkers. The only figure available is that of 65 m.p.h. averaged round the course in the Grosvenor Cup Race. But there is no question as to its manoeuvrability, its ample reserve of power or its practical utility for the intended purpose, given an engine of the required qualities.

THE PIXIE III.

The Parnall Pixie III is another remarkable machine. There is very little doubt that, regarded purely as an aeroplane, the monoplane version is a better all-round machine than the biplane to which it was converted for the competition.

Engine troubles prevented either Pixie biplane from showing its real abilities, but here again there is no question as to controllability and ample power reserve when the engines installed were functioning.

The monoplane version perhaps lands a little faster than the biplane, but it might be desirable for elementary teaching purposes particularly on a machine which is so lively on controls, but for any pilot who can fly the slow speed is as low as can be desired, and the take-off and pull-up are excellent. Altogether the Pixie should make an excellent sporting two-seater.

THE VICKERS VAGABOND.

The Vickers Vagabond is an extraordinarily well-made machine, and again is noticeable for its extreme controllability. Frankly, it may be suggested that it is far too expensive in design and construction in its present form to serve any practical purpose, though it is quite possible that regarded as an experiment, the expense involved in its construction can be justified. No data whatever as to its performance was obtained during the week owing to engine-mounting troubles, but that the machine has no more performance was obvious.

THE SHORT.

The Short Satellite is one of the prettiest machines produced. It was unfortunately hopelessly under-powered as the result of excess weight, but lightly loaded flies and handles excellently.

THE WESTLAND MACHINES.

The Westland Widgeon monoplane had the misfortune to crash on the first flight of the competition and therefore very little can be said concerning it. It was a very interesting experiment, of distinctly taking appearance, and its performance reports well of its behaviour. Fortunately it is understood that the machine is to be rebuilt and tested.

The Westland Wood Pigeon biplane suffered as an aeroplane from the desire of the designer to make it as closely as possible the precise equivalent of the Widgeon in performance. This led to the Wood Pigeon being just too heavily loaded with the result that both climb and get-off were not as good as they should have been. But the machine is beautifully built and finished, and either lightened or fitted with a larger wing surface should perform really well.

A.N.E.C.

The A.N.E.C. which was also designed by Mr. Shackleton differs only in detail and in engine from the winner of the first prize in the contest. Its failure to qualify in the eliminating tests was entirely due to the fact that it was presented with an airscrew unsuitable for taking off under unfavourable conditions with full load. It flew excellently after the airscrew had been changed, and its lack of success in the trial reflects no discredit on either the design or the construction.

THE SUPERMARINE SPARROW.

The Supermarine Sparrow was abnormally unfortunate with its engine, and Mr. Biard had endured no less than 19 forced landings on the machine before the meeting opened. It must have brought off at least as many more during the week, and on no occasion did any damage result to the machine—a fact which speaks well for the robustness and handiness of the Sparrow. Here again one has little to say upon estimating the performance, but can only record that visual evidence shows the machine to fly and handle most excellently.

THE CRANWELL BIPLANE.

Lastly, but not least, the Cranwell Club machine deserves more than a passing mention. Designed, constructed and then nursed through a very strenuous week's flying by a small and by no means wealthy group of officers and men

BEARDMORE MONOPLANE WINS



Sport & General Photo.

The Air Ministry 1st Prize of £2,000

"No more efficient Aeroplane than the Beardmore Aeroplane (which won the chief prize) has ever left the earth," stated Lt.-Col. W. A. Bristow, the aeronautical consulting engineer, who kept the records of the competitions.

Margin of speed is a very good standard of efficiency in an aeroplane, and this machine has a very wide margin. It can fly at about 90 miles an hour and also under 40 miles an hour. It can rise from the ground quickly and pull up slowly.

**BEARDMORE
MONOPLANE WITH
CHERUB ENGINE**

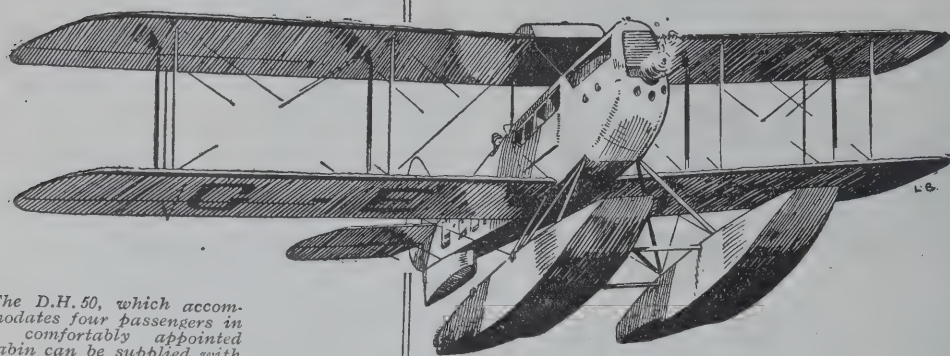
THE TIMES,
**LIGHT AEROPLANE
TRIALS.**
THE LYMNE RESULTS
**SUCCESS OF BEARDMORE
MONOPLANE.**
(FROM OUR AERONAUTICAL CORRESPONDENT.)
LYMPNE, OCT. 4.
The Beardmore Wee Bee monoplane, flown by Mr. M. Piercey, and fitted with an ungeared Bristol Cherub engine, won the first prize of £2,000 offered by the Air Ministry at the Light Two-seater Aeroplane Trials which concluded here to-day. The Bristol Brownie monoplane, flown by Mr. C. F. Uwins, also fitted with an ungeared Cherub engine, secured the second prize of £1,000.

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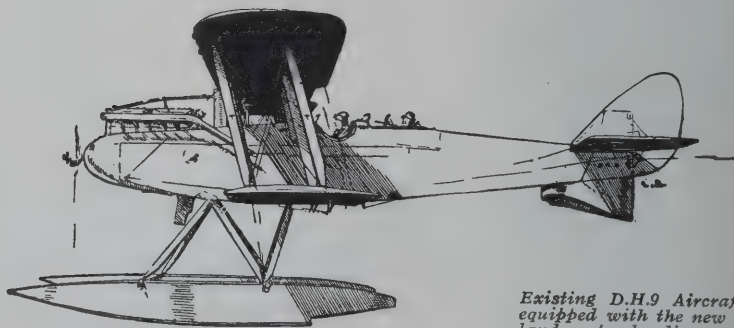
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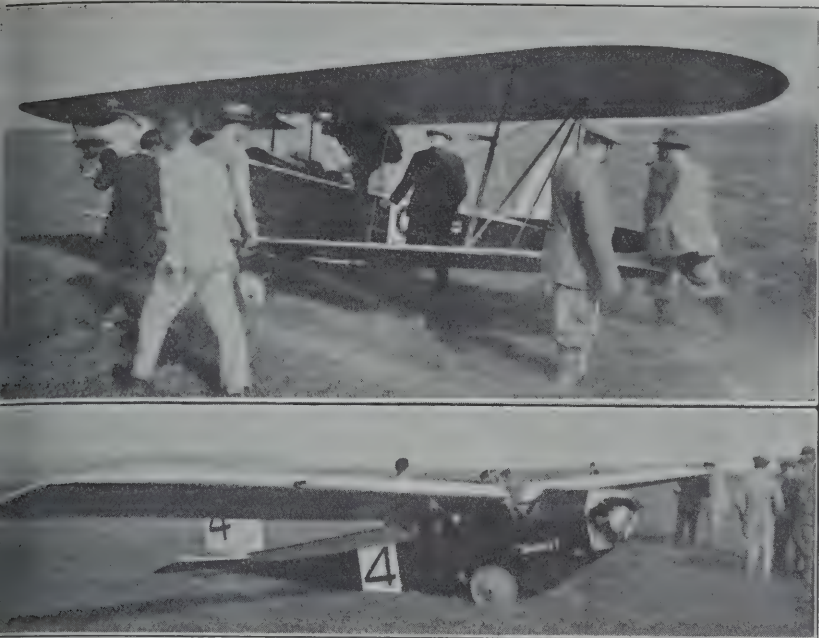
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



R.A.F. in their spare time, the machine and its performance must be considered to be a remarkable achievement. It is the nearest approach in England to the display of private as opposed to a trade effort in the sporting and experimental side of flying on lines which have been so successfully encouraged in Germany, and if the Air Ministry is sincere in its desire to encourage Light Aeroplane Clubs to go out of its way to give a little extra encouragement to those who are ready to follow the Cranwell example.

The C.L.A.C. biplane was undoubtedly slow, and probably the result of the large fuselage section together with a small-diameter airscrew it was sluggish in accelerating from near zero speed. Had it been possible to fit a geared-down engine and a large-diameter screw, its performance would undoubtedly have become very much better in these two respects. The weight of the finished machine compares exactly with the weights of any of the trade-produced machines, which is good evidence of sound structural design, the fact that it was still flying at the end of the week after its engine on the point of falling to pieces seems to indicate that it really had a much greater reserve of power than its performance seemed to indicate. And everyone is of the opinion that the Club's success in collecting three hundred pounds from the Motor Trades' Association was a singularly appropriate reward for a singularly stout effort.

THE ENGINES.

The Cherub—as was expected—fell the chief honours of the contest. Only one prize—the second in the getting-off the ground contest—was won by a machine with another engine. The Cherub was designed at least 18 months ago for 18/20 h.p. engine for single-seaters. The job of fitting it to a 30/40 h.p. engine for two-seaters was not one which could reasonably be expected to be completed successfully in the period of under nine months which have been allowed for the purpose, and that the effort to do so has been as successful as it has proved is really rather remarkable, and Mr. Fedden is to be congratulated thereon. The Cherub has given a good deal of trouble in the contest, but so far we can remember only two cases of actual mechanical failure of important parts has occurred. One of these was the result of a choked oil duct and the other of taking a risk in running at well over the intended maximum r.p.m. on a 18 h.p. engine. Neither of these failures can fairly be charged to defective design.

The troubles encountered were practically all of them of the same type, and the Cherub may fairly be considered to have a really good engine of its size.

The Blackburne radial was used on one Pixie, and on the Supermarine Sparrow, and the Westland Widgeon. The engine did not give it an opportunity of running for more than five minutes. The engine runs astonishingly smoothly and has a most reassuring note when going well. It is well lubricated and carburetion. At the moment of starting so much oil that if a cylinder misses the plug at the top. As the engine had practically never run—on test—before delivery to the aeroplane builders, it is of this sort were to be expected. Attempts to cut the oil supply led to failure of a big-end on the Supermarine, but otherwise the Blackburne really ran rather well, and it did not develop all the power expected of it.

A VICTIM AND THE VICTOR.—

At the top is seen the Supermarine Sparrow, whose Blackburne engine failed to keep going in the eliminating trials.

At the bottom is the Beardmore Wee Bee which flew so consistently and eventually won the Air Ministry's first prize of £2,000.

Its performance certainly deserves to be regarded as promising, considering the youth of the design.

The Vee-Twin Anzani frankly did badly. The geared model intended for the contest is said to have eaten its gears at once. The ungeared engine, which is, one believes, a standard model which has a reputation on the track, broke valves with unfailing regularity, and generally showed itself

to be incapable of standing up to the work. It develops plenty of power and is free from vibration, but requires a lot of work before it can be regarded as an aero-engine.

The A.B.C. Scorpion was used only on Raynham's Cygnet. Its unfortunate failure on the last day, within sight of winning the first prize, can only be regarded as a very unfortunate accident, and the earlier trouble with rocker brackets was probably the result of over-stiff valve springs. It is, of course, impossible to judge the engine by this single example, but on the whole the Scorpion is by no means disgraced.

Fuel and Oil Consumption at Lymington.

The figures achieved in last year's fuel consumption tests for light aeroplanes were so good as to astonish many people and to lead others to believe that they were purely freak performances and not such as could be attained with any reasonable certainty under normal conditions.

It is therefore interesting to record that for careful records kept of the consumption of the Cherub engines which took part in this year's meeting it has been ascertained that the average distance flown per gallon of petrol worked out at 33½, and that one gallon of oil sufficed for 520 miles. 67 passenger-miles per gallon of petrol as an average compares very well indeed with last year's best figure of 87½, particularly as fuel economy was not in question at this year's meeting.

A Youth He Would A-flying Go.

The following letter will be of interest to those concerned with light aeroplanes:—

STR,—Of late there has been much in the Press about private flying. It has been suggested that if some of the many youths who may be seen every week-end riding motor-cycles with "their super-cargo stuck on the back wheel," as someone pleased to put it, could be induced to fly, then it would do civil aviation in general a great amount of good. The authors of these suggestions seem rather to blame the young men for motor-cycling, as much as to say that they should at once cease to motor-cycle and learn to fly. But these good people do not seem to realise that whereas a perfectly good motor-cycle may be obtained from about £50 or £60 even an antique Avro would even now cost over £200.

Now to a youth £200 is a large (yea even unknown) sum of money, even if it be only pocket money to these writers, and £200 would not buy a reliable machine. As a motor-cyclist and at the same time one who is exceedingly interested in flying and would do anything to own even an antique I write to tell those responsible for what has appeared that it is not the youths who do not want to fly but it is that aeroplanes, be they ever so old, are not there for them to have. And a new machine is of course out of the question.

If we could be given a goodly portion of the needed cash then we would fly with the greatest joy, and do our level best to encourage civil aviation. But until aeroplanes become reasonably cheap then we will have to remain motor-cyclists.

(Signed) AN HARROVIAN.

French Air Strength.

At the moment the French Aéronautique Militaire consists of 132 escadrilles. These are made up of 32 pursuit, 68 observation and 32 bombing (including 11 night-bombing) escadrilles, making a total of approximately 1,200 aircraft actually in service.

In the near future these figures will be raised to 208 escadrilles and approximately 2,000 aircraft.

COMMONSENSE AND AERONAUTICS.

Lt.-Col. H. T. Tizard, A.F.C., the new Chairman of the Royal Aeronautical Society, delivered the inaugural address of the new session in the library of the Society on the afternoon of Oct. 2, under the above title. Having explained that he used the title not in any provocative mood, he suggested that the ordinary intelligent taxpayer's chief opinions concerning aviation might be summarised under three conclusions, namely, that:—(I) The Air Force is a necessity but must be as efficient and as economical as possible; (II) Civil Aviation is a luxury, and (III) Flying is unsafe.

Taking these three beliefs in order Col. Tizard feels certain that the British public is proud of its Air Force, alive to its importance and determined to keep it. But he gets a shock when he sees the bill, and he rightly insists that the Air Force should rely rather on efficiency than on numbers.

But one must face the fact that mere courage and discipline avail little if the enemy is the better equipped, and unfortunately it takes longer to produce the equipment than to train the personnel. Hence the need for expenditure on research. Research was already beginning to take a place in the public mind—there was already a general feeling that it was an excellent thing for somebody else to do.

MILITARY RESEARCH.

The impression was fairly widespread that military research resulted solely in the evolution of new methods of destruction, but nothing really could be further from the truth. He would go so far as to say that if all possibility of war were to disappear, the cessation of military research and the removal of the very powerful incentives behind it would have a marked effect on industrial research. In scores of ways the results of research undertaken for military purposes filtered through to the benefit of the industries of the country. The experimental work now in progress at Farnborough even if it failed entirely in its immediate object is destined to have a profound effect on other industries.

The only danger which Col. Tizard foresees in this insistence on the importance of scientific research is that the scientific worker may continue to be regarded as a peculiar being, to be segregated from his fellow-men and left to the evolutions of his inner consciousness. There are always likely to be men of genius who in the pursuit of knowledge for its own sake will strike out new paths for others to follow but most people need the inspiration of practical aims to call forth their best work. A vast amount of important work waiting to be done calls for no deep scientific knowledge, scientific method and a logical and unprejudiced mind being all that is necessary. The little aeronautical world had tended to be divided up into so-called scientists (a small, slightly troublesome and wholly incomprehensible sect) and practical men (who do the work). Experience on the Aeronautical Research Committee had taught him the danger of this and he hoped that the new organisation of the Air Ministry's Technical Department would avoid this.

[Col. Tizard here touches upon what is the root of the real trouble with official research organisations. Their personnel invariably get out of the habit of doing the work and tend to become more and more troublesome, incomprehensible, and impracticable. There is very little of the work now being carried out at Farnborough which could not be carried out more expeditiously and with more immediate effect on the progress of aviation and at a less expense by the firms who compose the British Aircraft Industry.—ED.]

IS CIVIL AVIATION A LUXURY?

As to Civil Aviation being a luxury, all activities that consume more than they produce are luxuries if they do not hold out promise of greater productivity in the future. Civil Aviation did not pay, or nearly pay, and was therefore a luxury unless one held that the present expenditure on it was a necessary preliminary to a very great, even revolutionary, change in its position in the future. It was because those interested in aviation believed in the future and in the necessity of carrying on large-scale expensive experiments in Civil Aviation in the present if the future was to be secured that they supported this particular demand on the harassed taxpayer.

THE UNSAFETY OF FLYING.

As to flying being unsafe there was no doubt that the commonsense view was right. About as unsafe as mountaineering but safer than, say, motor-racing. Statistics of the form usually employed to show the contrary meant little to the average man—they filled him however with suspicion. Actually on the passenger-mile basis flying was roughly 150 times as dangerous as railway travelling—if the statistics were of any real meaning. In five years six passengers out of 40,000 had been killed in civil aviation. If the railways killed six passengers in every 40,000 the railway passenger casualties would be 180,000 per annum instead of 87. Actually there was little to worry about in regard to this risk of accident—considering everything the aeroplane was amaz-

ingly strong, stable and reliable, and the risk of accident was not enough to deter the ordinary man from flying.

INSURANCE AS A DETERRENT.

What really stopped him were the insurance rates. rate for a passenger between London and Paris was at sent about 10s. per £1,000. The passenger who wished insure himself for £5,000 therefore had to pay £2 10s., or than one-third of his fare as premium. For sixpence a one could easily insure one's life for £1,000 against accident to a train or public vehicle plying for hire in United Kingdom. Thousands of people travel 3,000 per annum going to and from their daily work, and each them can insure against death in an accident to their conveyance for one penny per 500 miles per £1,000. For premium of 3s. one could take out a life insurance for without medical examination, but death by suicide, aeronautics or while in a state of intoxication are excluded. The graduation suggests that flying is more prehensible than suicide or fighting if less so than drunkenness.

A well-known member of the Society had to pay 3 per per annum premium for a life insurance to cover the risk fifty-five hours' flying on standard airworthy machines. can obtain the ordinary insurance against normal risks 1½ per cent. per annum. So that one hour's flying per v is regarded as involving twice as much risk of death as other causes put together.

There has recently been some improvement in this respect. Many big insurance companies allow their policy-holder indulge in occasional flights without extra premium. of them require notification of the flight, however, and is often a serious deterrent to flying. Altogether the surance problem is quite enough to prevent the average from thinking of using air transport.

On the other hand on statistics so far available the surance companies cannot be considered to put too high premium on aviation risks. The risk is high and uncertain and premiums will remain high until traffic develops such an extent that the companies can collect reliable statistics and the transport companies can make their services

A DILEMMA AND A SUGGESTION.

Thus there is the dilemma that the public will not in sufficient numbers to make aviation pay while the of insuring remains high, and Civil Aviation cannot be n to pay until the public do use air transport in large numbers.

Col. Tizard suggests that the insurance companies might called upon to help us out of this trouble. Although the risk accident in aviation is high on the passenger or passenger-basis, the actual sum involved in the payment of insurance to those killed in aviation is small. Counting crews people have been killed in British Civil Aviation in years. In the same period there have been over 18 suicides. Civil flying, even if the risks remain as they now, has to increase 600-fold before aviation deaths equal suicides. Many life policies cover suicide risks, and why courage aviation more than suicide?

And he therefore suggests that with no detriment to the dividends that would be discoverable the great insurance firms could allow them ordinary policies to cover flying risk so far as properly licensed and inspected aircraft were involved.

Koolhovens in France.

Tests are now being carried out at Villacoublay with new two-seater fighter monoplane fitted with the Bristol Jupiter engine and known as the De Monge 101 C.2. Short of its French type name the machine is the Koolhoven F.K. the licence for the construction of which has been acquired by M. Louis de Monge.

In general outline the De Monge 101 C.2 resembles original F.K.31 which was shown at the Paris Salon in 1917 but many modifications have been introduced by Mr. Koolhoven since then. These include the fitting of trailing-edge flaps, a dihedral to the main planes and a new split wing carriage.

The following are the principal figures concerning 101 C.2:—Weight, 1,680 kgs.; wing area, 23m²; minimum speed, 89 km.p.h.; maximum speed, 249 km.p.h.; speed 4,000 m., 220 km.p.h.; climb to 4,000 m., 12 min. 20 sec; useful load, 665 kgs.; ceiling, 7,000 m.

A Proposed Aero Club.

SHEFFIELD AND DONCASTER DISTRICTS: Mr. J. W. Holt of 14, Oswin Avenue, Balby, Doncaster, would be pleased to hear from fellow-readers in the above districts who interested in the formation of a club of a technical nature for the study and practice of aviation particularly bearing in mind the new Air Ministry scheme for the formation of a number of light aeroplane clubs in this country.

Light 'Plane Competition at Lympne.

Machines fitted with

B.T.H. Magnetos

gained

1st and 2nd Places.

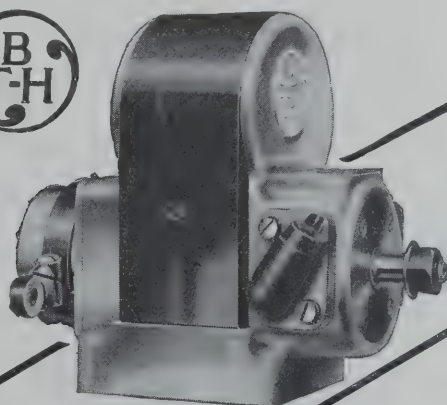
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Lympne and After.

There is little doubt that the Light Aeroplane week at Lympne after a beginning which looked as though it was going to be a failure turned out to be a very great success indeed and the Royal Aero Club deserves very much credit for the way in which it handled a number of difficult propositions. Mr. Harold Perrin, the Secretary, undoubtedly scored a great success and was much seen and heard throughout the meeting. Colonel Darby, of the Aircraft Disposal Company Ltd., who was Clerk of the Course, must have put up as much distance as the whole of the competitors put together dashing about from place to place both on foot and in his car.

Someone at the beginning of the week suggested that as a flying show it was poor but as an exhibition of Aero Club officials it was a very great success. It is very difficult to organise such a competition as this without a number of officials and although among these there were a few passengers the majority undoubtedly pulled their weight.

Opposite will be found an official statement by the Air Ministry on its opinion of the results. Everyone will agree that the 1,100 c.c. engine has not sufficient reserve of power for a two-seater machine. At the same time it is agreed that both the Bristol Cherub and the Blackburne show every promise and when developed will make very reliable engines. It is expected that the type is to be developed for small single-seaters and it is considered that the engine for two-seaters will be of the two-litre class. Mr. Roy Fedden tells one that he has already got out designs for such an engine and could have a dozen or so samples ready by next summer.

Arrangements are being made to make the week at Lympne an annual event and it is probable that an announcement may be made in the near future as to prizes and conditions of competition next year. In order that the light aeroplane movement may be kept going it has been suggested that it would be a good thing for the Royal Aero Club to organise a four-day meeting at Lympne to be held next Easter and the suggestion is being considered favourably.

It is further suggested that during Lympne week next year all the classic British races shall take place in addition to the light aeroplane races and it is quite probable that in that one week we shall have in addition to the races staged this year the Aerial Derby and the King's Cup Race. Undoubtedly this is a step in the right direction and one hopes that the S.B.A.C. will give the Royal Aero Club every assistance in making the scheme reach maturity.

Many important people in aviation visited Lympne during the week, Mr. D. M. Davies, of Falcon Airscrew fame, came to see how his screws functioned, and Mr. E. R. Adams, of Bray, Gibb and Co., the pioneers of aviation insurance, made his presence felt on Wednesday. Mr. H. T. Vane, of Napier, arrived on massive balloon tyres and accompanied by Mr. Jones to see how the small engines performed. Mr. Lappin held a watching brief for Rolls-Royce and Mr. Proctor disguised as a wolf took things in for Armstrong-Whitworths. Mr. C. R. Fairey complete with cinema camera made a record of all things.

The fact that the Beardmore machine was enabled to win the competitions was not merely due to luck. It was due to solid hard work by all the personnel. The machine had been well tested by Mr. Piercey before it came to Lympne. It was sent to Lympne in plenty of time for preliminary tests and Mr. Piercey alone experienced no difficulty whatever in getting through the eliminating tests.

When these tests were formulated they seemed to present no difficulties at all and nobody expected that any machines which could fly would fail to pass.

Mr. Baxter who is now chief engineer to the Beardmore Aircraft Department was originally there before air operations were temporarily suspended. For the past year or three years he has been chief engineer to the Instone Line and when the three companies merged he returned once more to his former post. Mr. Baxter worked at Lympne such hours as would be impossible for many people and especially during the whole week he got in about as much sleep as most people get in a night and he nursed the Beardmore through all sorts of trials and tribulations.

Mr. Shackleton has once again proved himself to be a thing of a genius among designers. It is a great feat in his cap that the first machine he should produce for Beardmore should have been such a great success. He is at present working on a very secret machine which in the course is likely to prove somewhat sensational.

The Light Aeroplanes' Trials.

The following announcement has been made by the Ministry:—

The two-seater Dual Control Light Aeroplane Competition, which concluded at Lympne on Oct. 4, has resulted in the production of new aeroplanes and engines of extreme interest and value from a practical and technical point of view. The aeroplanes, which are all widely divergent in design, proved themselves to be thorough, efficient and satisfactory, and the power plant showed itself capable of carrying out all the tests prescribed, including the 10-hour reliability test. On the other hand, it was found necessary to test the engines at such a high speed in order to secure the maximum competition performance, that a loss of reliability was the inevitable result.

The Air Ministry is, therefore, reviewing the whole of the position with a view to obtaining the necessary technical data, free from the adverse conditions inherent in a competition of this nature.

The Air Ministry considers that the results so far achieved warrant the formation of a small number of light aeroplane clubs, but does not feel justified in recommending the adoption of any existing types of dual control aeroplane for the use of such clubs until the engine question has been further explored. It will, therefore, be necessary for prospective members, or in the case of clubs which have already formed, the active members, to realise that some delay must inevitably occur before clubs can be fully equipped. Those interested will be kept fully informed of developments in order that they may arrange their definite programmes as early as possible.

More Alleged Heartlessness.

Upon the Aerodrome at Lympne
The Hearty Harold stands,
A sturdy fellow, full of vim
With voice like ten brass bands.
The tonsils in his mighty throat
A "gent's outside" in glands.

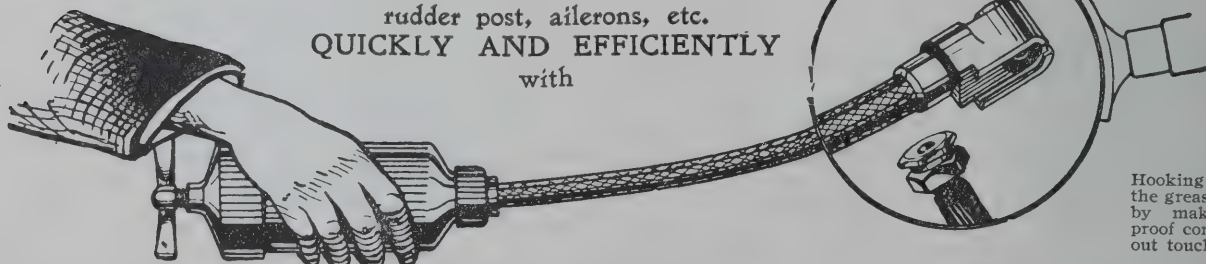
He went on Sunday to the church
To sing amongst the choir
When he began, the building bent
From crypt up to the spire
And Harold now will stay away.
Unanimous desire!

In large plus fours, of vivid hue,
Our Harold looks so smart.
And everyone the day will rue
When we with Hal must part.
A cold might make him lose his voice
The shock would break his heart.

Shouting, exhorting, bellowing,
Onward thro' life he goes
Each morning sees his mouth open
No evening sees it close.
And nobody at Lympne as yet
Has won a day's repose.

HIGH PRESSURE LUBRICATION:

Grease your undercarriage, controls,
rudder post, ailerons, etc.
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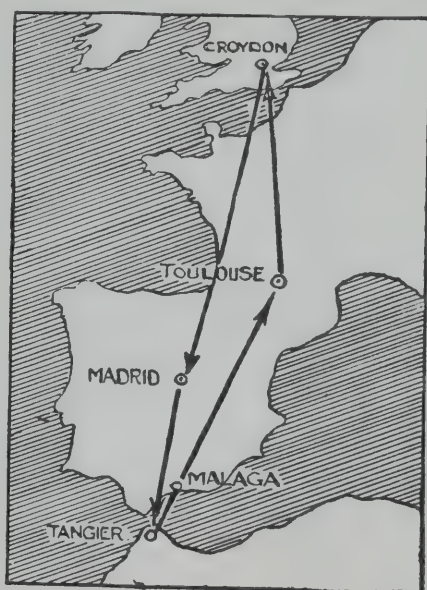


LONDON—AFRICA in a DAY

CROYDON, 6 a.m.—TANGIER, 7 p.m.

LONDON to AFRICA and BACK

TOTAL
DISTANCE,
3000 MILES



FLYING
TIME,
28 HOURS

The machine which did this flight was a De Havilland 50 fitted with a 240 h.p. SIDDELEY "PUMA" ENGINE supplied by Aircraft Disposal Company, Ltd. (Pilot, Mr. Alan J. Cobham.)

Other "Puma" Successes are :—

First in King's Cup Air Race, 1924, 1,000 miles at 106.66 m.p.h.

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COMMERCIAL AERONAUTICS.**The London Terminal Aerodrome.****ANALYSIS OF FIGURES FOR THE PAST WEEK.**

Trips per Day.—Monday, 16; Tuesday, 18; Wednesday, 9; Thursday, 20; Friday, 19; Saturday, 19; Sunday 10.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 65, passengers 308, freight 19½ tons.

AIR UNION:

Paris—London: Machines 26, passengers 105, freight 9½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 14, passengers 46.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 6, passengers 7.

Total number of trips by British machines: 65, carrying 308 passengers. Foreign machines: 46, carrying 158 passengers.

Comparative Figures:

For week ending Oct 12:

Machines, 111; Passengers, 466; Crews, 137; Total personnel, 603.

Corresponding week, 1923:

Machines, 60; Passengers, 132; Crews, 89; Total personnel, 221.

Corresponding week, 1922:

Machines, 101; Passengers, 305; Crews, 163; Total personnel, 468.

Corresponding week, 1921:

Machines, 80; Passengers 214; Crews, 109; Total personnel, 323.

Corresponding week, 1920:

Machines, 125; Passengers, 196; Crews, 143; Total personnel, 339.

Croydon Notes.

Although nothing very startling has been occurring at Croydon during the past month much good work has been done and the average number of machines operating and passengers travelling shows a distinct increase over previous years.

A London evening paper recently came out with huge headlines stating that the four-engined Blériot had flown from Paris to London in 47 minutes. Unfortunately someone had blundered and in working out the time forgot to allow for the fact that while summer time had ceased in England it was still in force in France. The said evening paper while blazoning the huge speed of the machine in its headlines had to explain in its stop press column on the same page that the corrected time showed that the machine had occupied 1 hr. 47 mins. for the trip.

An incident which escaped notice owing to the occupation of Lympe deserves to be recorded now. Lt.-Col. Minchin

was taking off from Cologne on a D.H.34 with eight passengers when he felt a slight jar. He looked down and that half of his undercarriage had been demolished. He carried on however and arrived over Lympe in safety. He landed the machine exceedingly slowly and touched with three-point landing doing practically no damage. One passenger was somewhat bruised owing to the rapid deceleration of the machine.

It transpired that the object struck was a small hut used for a definite purpose. This was knocked about yards from its original position.

The Aircraft Disposal Company Ltd. are doing plenty of work. An interesting announcement with regard to a new engine is likely to be made in the near future. Mr. Perry has been conducting height tests with a Martin with Lamblin radiators.

Air Mails.

The Postmaster-General announces that the early morning Air Mail to Paris, closed at the General Post Office, London, at 3.0 a.m., has been suspended. The dispatch at 11.0 a.m. is being maintained.

The Air Mail to Copenhagen, closed at the General Post Office, London, 7.30 a.m., will be suspended after the patch of to-morrow (Oct. 14); and in consequence of suspension for the winter of the ordinary night service from Berlin to Denmark and Scandinavia, advantage of letters to Denmark, Norway and Sweden is no longer obtainable by Air Mail to Berlin or elsewhere.

A new edition of the Air Mail leaflet, giving particulars of the winter Air Mails, is being printed and will be available shortly.

The Grosvenor Cup.

With reference to the Castrol advertisement published in THE AEROPLANE last week a slight error crept into the transcript. It was stated that Mr. J. L. Parker on a Bristol Satellite monoplane with Bristol Cherub engine was third. Actually Mr. T. W. Campbell on a Bristol Brownie monoplane with a Bristol Cherub engine was third. The error arose owing to the fact that after the first and second machines had passed the post the next machine to pass was the Short. This machine actually was only on its starting lap.

CAUTION TO MOTORISTS

Instances of "SHELL" CANS being refilled with other spirits and sold to the public as "SHELL" are repeatedly brought to our notice. We therefore



issue this caution to motorists, to see that the seal (illustrated here) is unbroken, otherwise we can take no responsibility for the contents of the can.

When buying "Shell" FROM PUMPS, the motorist's safeguard is to ask to see the "Shell" guarantee, which is available to all dealers who retail "Shell" from pumps.

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THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by
C. G. Grey

Vol. XXVII. No. 17. SIXPENCE WEEKLY.

Registered at the G.P.O.
as a Newspaper.

WITH THE NIGHT MAIL.



A Junkers "A" type two-seater monoplane used on the Berlin-Warnemunde-Stockholm night air-mail service arriving at Warnemunde from Berlin. This service which has only just begun operations, is restricted to the carriage of mail matter.

Fit PALMER for Peace of Mind

THE ORIGINAL AND ONLY REAL CORD TYRE.

SEE PAGE 399 FOR PALMER LANDING WHEELS AND TYRES.

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First

In Grosvenor Cup

The Avro "AVIS," fitted with a Bristol "Cherub" engine, and piloted by B. Hinkler, won the Grosvenor Cup at Lympne on Oct. 4th, 1924. The machine covered the course of 100 miles in 1 hr. 31 min. 5 sec., averaging 65.89 m.p.h.

PIONEERS in the design and production of the world's best aircraft, it is only natural that A. V. Roe & Co. Ltd. still maintain their leadership. Enquiries, either for specially designed machines or quantities — of AVRO machines, are invited. —

A. V. ROE & Co. Ltd., have unrivalled experience in building the world's best Aeroplanes and Seaplanes.

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Incorporating
Aeronautical Engineering

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ON A VISIT TO AMERICA.—II.

By C. G. GREY.

New York, Sept. 30, 1924.

America is a friendly nation. Early in the War 1914-18 Americans were friendly neutrals. Later they were not. Now, in spite of having been Allies, the Americans are still friendly.—Which is rather wonderful, considering how much they ought to know us.

Therefore anything one can do to be useful to the American Aircraft Industry is only as it should be. In the last few years the American Aircraft Industry was very useful to us, in spite of the aircraft production scandals. In the next war we ought to be very useful to them, and we ought to make a little profit out of the fact for the first few years of the war—until in due course we go in as Allies.

A USEFUL ALLIANCE.

It is a mistake to think that there must of necessity be war between the knife—or to the pocket—between any English industry and an American industry in the same line of business. If in the early days of the Motor Trade some English car firms had the common gumption to form an alliance with American firms and had combined American cuteness in design and detail design and equipment with English solidity of general design and quality of construction they would be in a better position to-day and there would be less American automobiles on the English roads.

As far as the Aircraft Industry is concerned, the Chairman of the Society of British Aircraft Constructors, Mr. C. R. Grey, has set a good example by acquiring the Curtiss patents and designs with a view to improving the breed of British aircraft—albeit one acquired the enmity of certain British constructors by daring to say so in print. But if he wants to tell the truth in print one must always be prepared to see one's advertisement columns suffer accordingly. The greater the truth the more they suffer. Some people regard a trade paper purely as a machine for selling their own products and not as an organ which exists for the good of progress and for the assurance of national security. Such people are recommended not to read these columns on America, for they may discover some few unpalatable truths about ourselves.

AMONG FRIENDS.

However, as one has said, the Americans are a friendly people. Apart from national friendship they are individually the most friendly folk one has met. When one remembers the way in which individual members of the American Aircraft Industry have come over to England during the past few years and have been allowed to wander around alone, strangers in a strange land, without a soul to invite them to a party or to take pot-luck at home, one feels ashamed to accept the hospitality which is offered to one on all sides in this country.

Many of the people one has met are old friends of the War. Some are new friends whom one has only met on paper during this devastating peace, and some were complete strangers till one arrived, but one and all have the glad hand so patiently outstretched. And the deuce of it is that one offers them nothing in return except good advice, which they consist in advising them to get an Air Ministry for as soon as they can, by fair means or foul. Naturally one can give them no technical information, giving nothing oneself on the subject. But seeing the performance and construction of their best machines one doubts whether we can teach them anything anyhow. Their trouble is purely political.

POLITICAL TROUBLES.

When one arrived one was told that everybody hoped one would feel at home. After one had met in a few days nearly everybody who is anybody in the American Aircraft Industry one felt so much at home that one seemed to have come back to England of about 1914. The whole position of the Aircraft Trade in the States is politically just about what ours was then. And the whole cause of that position is much the

same,—the lack of a clear-cut definite policy for the supply of aircraft to the Flying Services.

In those days we had the Royal Aircraft Factory (now the Royal Aircraft Establishment) at Farnborough which was doing its best to crush the trade out of existence. The Air Department at the Admiralty, under Captain (now Admiral and M.P.) Murray Sueter, with Mr. Churchill as First Lord to back him, was trying to keep the Trade alive, but without enough money to assure continuity of orders. And the Trade was trying to produce progressive designs and wondering how to pay for their construction.

In America to-day the Naval Bureau of Aeronautics runs a Naval Aircraft Factory at Philadelphia which absorbs money which would go far to keep the Trade alive and is a standing menace because so many of the dear old bone-headed Admirals still believe in the dockyard system of production. At the same time some few progressive Naval officers have managed to pay firms for the development of good engines like the Curtiss and Wright and for racing seaplanes like those which hold the World's land-going and sea-going air records to-day. But they have not the money to secure that continuity of orders which is essential if an Industry is to be established on a firm commercial basis.

The Army has McCook field which corresponds to our Royal Aircraft Establishment in that it does experimental work at a colossal cost and spends money which ought to go to maintain the Industry's research plants and to buy new modern machines for the Army Air Service.

LACK OF CONTINUITY.

But the worst trouble of all is that there is no Government Department which *can* lay down a policy. There are no Permanent Secretaries in the Government Departments, as there are with us, to teach new Ministers their business. In America all the officials are shifted out of office with each change of party in power after each Presidential election. With us the new political Ministers assume office and automatically continue the general policy of their predecessors,—as example, consider how all our pacifist Labour Ministers are becoming militarist at the Admiralty and War Office and Air Ministry. In the States each new Minister does what he pleases or what best suits the people who put him in power.

Also as there is no Air Ministry in America, the Secretary for the Navy has his views coloured by the Navy's senior officers and so thinks of "airplanes" as an adjunct to the Fleet and the Secretary for War thinks of airplanes as an auxiliary to the Army. There is nobody to think of air war and of air force as such.

The result is that the Army, let us say, wants "pursuit ships"—which we erroneously call "scouts"—of a certain type. An order is given for experimental machines. If they prove satisfactory the contract for production in quantities is put out to tender and the lowest bid is accepted—which generally comes from a firm which has no research plant to maintain and so is not a designing firm at all.

Several such firms have gone broke through tendering too low. In some cases the Service has had to go without its machines in consequence. In any case the original designer suffers in that he does not get the profits on the production order which should be his due reward for his previous hard work.

Also, when each contract is finished there is no follow-on order to keep the factories going. The result is that one firm will be going full blast for six months or so and will stand flat empty for the next year while another which has been flat while the other was busy will itself start getting busy on a new contract.

AMERICA'S NEED.

Naturally it is impossible to finance an industry which is mishandled by Government in such a way. Or at any rate progress is impossible, for there is no money to pay for experimental work and the production of new types, for the

wise constructor who has made big money on one contract, will just sit on his profits and wait to under-bid somebody else on the next contract which is put out for tender.

Evidently what the States need is an Air Ministry like ours which will organise a scheme, as ours has done, by which continuity of orders and of work is secured to each firm which has been approved as competent to produce reliable aircraft.

A NEW ERA.

However, the aeronautical atmosphere in the States is clearing. When President Coolidge went to meet the American World-Fliers he was kept waiting for four hours in the rain because the aviators were held up by fog. During those four hours Service aviators of all ranks talked to him and at him about the lamentable state of American aviation and

he learned a lot which he would never have heard but for that opportune delay.

The result was that a few days later the President came out with a public statement which was roughly to the effect that the safety of America depends on air force. Following that Mr. Arthur Brisbane, the chief of the great Hearst group of papers, who is openly and honestly anti-Japanese, pronounced that he would support Mr. Coolidge in the Presidential election *because of his air policy*.

And so the aeronautical people of America, relying on Coolidge-Brisbane declarations in favour of aviation, are feeling more cheerful. At any rate they feel sure that influences will awake public interest in the need for adequate air force. Which is very like the revival in aeronautical interest which began in England two years or so ago. That also tends to make one feel at home in the State C. G. G.

THE GENERAL ELECTION.

A glance through the list of nominations of candidates in the forthcoming Election reveals the fact that there are some twenty-six candidates seeking election or re-election who may be described as being more or less interested in aeronautics. It seems well therefore to set out their worth so that electors may know something about those for whom they are asked to give their votes. Some of them are Conservatives, others Liberal, others Socialists, and one or two describe themselves as Constitutionalists, which latter is more or less a camouflage for those erstwhile of other parties who have now been converted to the Conservative school of thought, and who, for the sake of old times, have not yet actually adopted the title of Conservative. The order in which they are being considered is the order taken from the list of nominations given in *The Times*.

Although *THE AEROPLANE* is strictly an independent paper, independence does not necessarily mean not caring a jot what happens. It seems that the Conservative party is the only party which is properly led that has any hope of obtaining a majority. Lord Thomson and Mr. Leach, the first Socialist Secretary and Under-Secretary of State for Air, have done neither better nor worse than any of their predecessors. They have both taken a very great interest in their work and should the Socialist Government be defeated there will be regrets at their going.

Incidentally it seems that it would not be a bad plan to adopt the French system for retaining Air Ministers. M. Flandin and M. Laurent Eynac who between them are the alternate equivalents of the Secretary of State for Air in the French Government have passed through many changes of Government without competitors. Their secret is a very simple one. Everywhere they go they fly. Apparently other French Senators are not anxious to fly much and so when there is a change of Government the only Senators who will continually fly are M. Flandin and M. Laurent Eynac, and whichever of them is out of office goes in and vice versa.

To return to this country no one can say that the Socialist Cabinet is well led. Some of the speeches of the Prime Minister are as undignified as those of Mr. Lloyd George at his very worst. The Liberal policy leads to nowhere but is more or less harmless and therefore it seems that the right thing to do is to vote for the Conservative where possible or where a Liberal only opposes any denomination other than Conservative it will seem the least bad policy to cast a vote for him. For the last few years we have, so to speak, been going from "Poll to Poll that wars may cease." But as things stand interparty wars or elections do not cease.

The following is the list of aeronautically-interested candidates:—

In South Battersea Viscount Curzon (Conservative) opposes Mr. A. Winfield (Socialist). Lord Curzon is exceedingly interested in all things appertaining to the air. He has very considerable knowledge of aviation though he has views of his own on how the Navy should operate its aircraft. He is undoubtedly an asset to the Air Party and should be voted for in preference to the Socialist.

In North Camberwell Dame Helen Gwynne Vaughan is the Conservative candidate in a three-cornered fight. She was the head of the W.R.A.F.'s during the War and her administrative powers are well known. She has a big Socialist majority to wipe off and there is also a Liberal candidate in the field.

At Chelsea Sir Samuel Hoare, who was the Secretary of State for Air in the last Conservative Government, has a three-cornered fight against a Liberal and a Socialist. He is a great advocate of the air policy and a power in the Conservative ranks.

At South Hammersmith Sir William Bull (Conservative) has a three-cornered fight. Sir William Bull is very interested in aviation matters and is frequently to be seen at aeronautical functions.

In West Lewisham Sir Phillip Dawson (Conservative) has a three-cornered fight against a Liberal and a Socialist. Sir Phillip Dawson is a well-known engineer and one of the coming men in the Conservative party. As usual he is making a strong Air Force a plank in his platform.

At Ashton-under-Lyne the Labour candidate is Mr. C. L. Malone, better known as Colonel I'Estrange Malone. He was a pilot at Eastchurch in pre-War days and lately has developed Bolshevistic tendencies

and seems to have lost serious interest in aviation. Therefore Conservative opponent, Mr. C. W. J. Homan, will doubtless be a greater asset in the House.

In the Ladywood division of Birmingham Mr. Oswald Mosley (Socialist) opposes Mr. Neville Chamberlain. Mr. Mosley served a month or two as an observer in the R.F.C. in the early part of 1915. He then came to Shoreham and tried to learn to fly but the better of it and returned to the Cavalry. His brief acquaintance with aviation causes him to pose as an expert but no doubt Ladywood will prefer Mr. Chamberlain.

In Central Bradford Mr. William Leach, the Under-Secretary of State for Air opposes Lieut-Colonel A. Gadie, Conservative. Leach started off professing pacifistic opinions, but later developed war-like tendencies. Doubtless he will recapture the seat though defeat would not be a great loss to the House.

In North Bristol Capt. F. E. Guest stands as Constitutional candidate against a Socialist. Capt. Guest was Air Minister in Coalition Government and was exceedingly successful in that office. If he is returned as a Conservative in everything but name he will be a great asset.

In the Central division of Kingston-upon-Hull Lieut.-Cdr. J. Kenworthy stands as Liberal candidate against a Conservative. Whatever may be the people's personal opinion of Commander Kenworthy he is undoubtedly an asset in the House owing to his tremendous capacity for work and although a Liberal his return is eminently desirable. He always attends air debates.

In the Chatham division of Rochester Lieut.-Col. J. T. C. Moore Brabazon, the Conservative candidate, has a three-cornered fight against a Liberal and a Socialist. Col. Moore Brabazon holds pilot's certificate No. 1 and was the first man in this country to fly a circular route. In the last Conservative Government he held a post in the Ministry of Transport and is one of the clearest thinkers of the "Air party" in the House of Commons.

In the Hallam division of Sheffield Major-General Sir F. H. S. stands as Conservative against a Labour candidate. Sir Frederick has been Chief of the Air Staff and Controller-General, Civil Aviation, and should be returned.

In the Stratford division of West Ham Mr. H. H. Balfour stands as Conservative candidate against a Socialist. Mr. Balfour served in the R.A.F. and was Air Vice-Marshal Higgins' A.D.C. He gave that post when the A.V.M. went to Iraq. He might prove an asset in the lobbies.

At Leith Capt. Wedgwood Benn is the Liberal candidate against a Socialist. Capt. Benn served during the War as an observer. He is always keenly interested in air topics in the House and tries hard to do well.

At Mid-Bedford Brig.-General W. W. Warner stands as Conservative candidate against a Liberal. Practically everyone who served in the Flying Corps knows General Warner both as a Major and a Lieutenant, and as different varieties of General, for he lived at the War Office, Admiralty House and the Hotel Cecil and interviewed those applying for entry to the R.F.C. His knowledge should be very useful in the House.

In the Epping division of Essex Mr. Winston Churchill stands as Constitutional candidate against a Liberal and a Socialist. Churchill's history as regards things appertaining to aviation is well known to need repetition here. He has already been absent from the House too long and everyone will hope that he will return to be a tower of strength in matters affecting the Air Services.

In Hertford Rear-Admiral Murray Sueter is the Conservative candidate against a Liberal and a Socialist. This constituency was represented during the War by Mr. Pemberton Billing. Admiral Sueter was Chief of the Air Department of the Admiralty during the early part of the War and has done great work for aviation.

For the Isle of Wight Major-General J. Seely stands as Liberal candidate against a Conservative and a Socialist. Major-General Seely has always been keenly interested in aviation though in his various official positions he has always rather meant well than done well. If he is replaced in this election by the Conservative no one would wonder very much.

In the Canterbury division of Kent Mr. R. McNeill (Conservative) opposes a Liberal. Mr. McNeill, although not strictly connected with aviation, will always be remembered for his criticisms of Sir Sam Waring (who was always understood to have obtained his baronetcy connection with aviation) when the latter was given his peerage.

For the Clitheroe district of Lancaster Capt. W. Brass (Conservative) opposes a Socialist. Capt. Brass served in the R.F.C. out of France as a balloon officer. He has youth on his side and is expected to have a big future before him.

In the Acton division of Middlesex Sir Harry Brittain (Conservative) opposes a Liberal, a Socialist and an Independent Socialist. He is one of the directors of D. Napier and Sons Ltd. and so may be expected to have considerable interest in acquiring a strong Air Force.

ARMSTRONG SIDDELEY

Aircraft Engines.

Stages in Progress.

THERE is no more rigid or thorough test for an engine than the Type Tests carried out under supervision of the Aeronautical Inspection Department of the British Air Ministry. Three times has the Armstrong Siddeley

"JAGUAR" Air Cooled Radial Engine

been submitted to this test and come out triumphant:—

June '22, Series II "Jaguar," 325 B.H.P., 50 hrs.

March '24, „ III "Jaguar," 360 B.H.P., 50 hrs.

August '24, „ IV "Jaguar," 385 B.H.P., 100 hrs.

It will be noted that in addition to the high speed and maximum power tests the duration of the latest test was 100 hours. The "Jaguar" Air Cooled Radial is

**the first and only aircraft
engine to fulfil this test.**

Other Achievements.

Farthest North. Oxford University Expedition North Eastland. Avro Aeroplane fitted with "LYNX" Engine beat Farthest North flying record—80.15.

London to Africa. Mr. Alan J. Cobham flew from London to Tangier and back in a D.H.50 fitted with an Armstrong Siddeley "Puma" Engine—3,000 miles in 28 hours actual flying time.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

In the Twickenham division of Middlesex Sir W. Joynson Hicks (Conservative) opposes a Socialist. Sir William has been an ardent supporter of things aeronautic since the very earliest days of flying and everyone will remember how he fought for a strong air policy in the far off days before the War.

For the Uxbridge division of Middlesex Commander C. D. Burney is the Conservative candidate against a Liberal and a Socialist. Commander Burney is the father of the Burney airship scheme and is the High Priest of airships and gasbags in the House of Commons.

At Oxford University the Conservative candidate is the Lord Hugh

Cecil. There are two seats here, the other two candidates for are Sir Charles Oman (Conservative) and Prof. Gilbert (Independent). Lord Hugh Cecil has long been keenly interested in aviation. He learned to fly at Shoreham in April, 1915, and after taking his ticket he did not do very much active flying but in an administrative capacity at R.F.C. Headquarters. The fact he visited Lympne during the recent Competitions shows that he has an interest in flying. For the other seat it seems best that it be won by Prof. Gilbert Murray. His son, Mr. Dennis Murray, known in aviation circles, should be able to keep his father on the right road as regards air affairs.

THE ROYAL AIR FORCE.

The London Gazette.

Oct. 14.

GENERAL DUTIES BRANCH.—The following Plt Offs. are promoted to the rank of Flg. Offs.:—H. C. Evans (June 20); C. W. A. Byrne (Aug. 15); D. S. Brookes, W. D. Baxter, J. E. Doran-Webb (Oct. 15).

Air Marshal Sir J. M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O., is placed on half-pay, scale A (Oct. 9).

STORES BRANCH.—Flg. Off. W. T. Lewis is granted a perm. comm. in the rank stated (Oct. 15).

The following Flg. Offs. are granted perm. comms. for accountant duties in the rank stated (Oct. 15):—J. J. Caiger, W. E. Ennis, A. W. Gray, C. G. Prior.

MEDICAL BRANCH.—The following are granted perm. comms. in the ranks stated (Oct. 15):—Flt. Lt. T. McClurkin, M.B., D.P.H.; Flg. Off. C. V. D. Rose. Flg. Off. (hon. Flt. Lt.) G. R. Hall, M.D., is promoted to the rank of Flt. Lt. (Oct. 8).

CHAPLAINS' BRANCH.—The Rev. J. Black, O.B.E., M.A., is granted an hon. comm. as a Chaplain without pay and allowances with the relative rank of Sq. Ldr. (Sept. 20).

RESERVE OF AIR FORCE OFFICERS.—The following are confirmed in rank:—Flg. Offs.—G. H. Welsh, D.F.C. (Sept. 16); H. G. Brackley, D.S.O., D.S.C. (Oct. 8). Plt. Offs.—W. Dougall (Sept. 20); C. H. L. Needham (Sept. 25); V. Vickers (Sept. 28). Flg. Off. J. E. A. Hoare is transferred from Class A to Class C (Oct. 14). The comm. of Plt. Off. on probation J. M. Clarke is terminated on cessation of duty (July 25). The comm. of Flg. Off. on probation A. S. Poynton is terminated (Oct. 14).

Officers from Cambridge University.

The Air Ministry announces that on the nomination of the Board of Military Studies of the University of Cambridge the undermentioned graduates of Cambridge University have been appointed to permanent commissions as Pilot Officers in the General Duties branch of the Royal Air Force, with an antedate in each case of 12 months' seniority under the University Candidates' scheme of entry:

Ronald Melbourne, Edward Collis de Vivac Lart.

The Cancelling of the Schneider Cup Race.

The Flying Club of Baltimore, which is responsible for the organisation of the Seaplane Race meeting at Baltimore on Oct. 22 to 25, announces that owing to the withdrawal of the Italian entries and the wrecking of the British entry the race for the Schneider Cup on Oct. 25 has been cancelled.

The other events in the programme will not be affected by this decision, and the American team which was to have defended the Cup will attempt to set up new seaplane records.

By refusing to take the opportunity which has been offered them of putting their machines through the navigability tests and then "walking over" the course, the American authorities responsible have taken an extraordinarily sportsmanlike step.

The Schneider Cup Trophy is to become the property of the representative body of that nation which first wins it three times in five successive years, or which holds it unchallenged for five successive years.

Had the Americans walked over this year they would have only had to win the race for the cup once in the next three years to make certain of its becoming permanently domiciled in America, and it would have been necessary to defeat them in next year's race to prevent their winning it outright in 1925.

By abandoning the race this year they have given this country and all other prospective challengers at least two more opportunities of disputing the possession of the Trophy.

No one will deny that if America eventually secures the Schneider Trophy she will have thoroughly deserved it. For the sake of British prestige both in matters of sport and of aeronautics however it must be hoped that a full team of British seaplanes will be ready for next year's race and will at least give the Americans a really good run for the Cup if they do not succeed at least temporarily in removing it from American custody.

The Z.R.3 Across the Atlantic.

At 09.55 hours on Oct. 15 the Z.R.3 landed at Lakehurst 81 hours 45 mins. after she had left Friedrichshafen on her flight of delivery to the United States Government. The first sight of the North American coast was obtained just before midnight on Oct. 14 and thereafter she followed

The R.A.F. in Turkey, 1922-23.

The second annual re-union dinner for officers of the R.A.F. served in Turkey in 1922-23, will be held in the Connaught Rooms, Nov. 22 at 7.30 for 8 o'clock.

Group Capt. Fellowes will preside. It was hoped that General Charles Harington would be able to be present this year, but unfortunately he cannot possibly arrange it.

Tickets, 15s. each (exclusive of wine), may be obtained from F. Gayford, R.A.F. Station, Duxford.

No. 58 Squadron Dinner.

A most successful re-union dinner was held at the Trocadero, Oct. 11. Amongst those attending were the original Squadron commander, three original Flight-commanders, and original Ring, Equipment, and Gunnery Officers.

It was decided to hold the dinner annually in future, previous in October, and to include the original Squadron—No. 58, No. 7 which it was merged, and the post-war 58 Squadron. C. H. B. Monmouthshire Club, Newport, is undertaking to do the necessary secretarial work.

Those present this year included Wing Cdr. Tyssen, Flt. Lt. Messrs. G. K. Palmer, C. H. Brewer, and Morley-Peel, I. Fletcher, Wilkinson, Ewen, Hilton, and Allsebrook. The second would be glad to have the permanent addresses of past and present members.

No. 28 Squadron Re-union.

The Annual Re-union of 28 Sqdn. Association took place at Old Bell, Holborn, on Oct. 4; 28 members were present. The annual business was done and the Committee was re-elected. The proceedings ended with a concert. Full information about the Association may be obtained from C. T. Hodges, 102, Cannon Street, N.W.1.

The Great Yarmouth Dinner.

The Fifth Annual Re-union Dinner for Officers and one-time Officers of Great Yarmouth Air Station will take place on Oct. 25 at Oddesley, at 7.30. Tickets (15s.) may be obtained from Capt. G. F. H. B. 17, Welbeck Street, W.1.

the coast from Nova Scotia down to Cape Cod and then onward to Boston which was passed at 04.00 hours. Reduced speed in order to time her appearance over New York in daylight, she passed over Providence, Newport, New London, New Haven, Mitchell Field, Long Island, where an escort of seven aeroplanes was picked up, and made a wide sweep round the statue of Liberty at 07.45 hours. For 40 miles she flew round and over New York City and then turned south to Lakehurst where she landed safely and was met into her shed by 300 sailors and marines.

The commander of the Z.R.3, Dr. Eckener, in an interview said:—

The first part of our voyage was fine, but the last part full of bad weather. From 5 a.m. Tuesday to 5 a.m. to-day (Oct. 15) we battled against wind with a velocity of from 55 to 60 m.p.h. We changed our course from the direct line we were pursuing from the Atlantic to Lakehurst because we found ourselves heading into a south wind which was rising and a small low-pressure area.

The flight of the Z.R.3 has given rise to much rejoicing in Germany, where the newspapers with one exception herald the flight as being the first to be made by an aeroplane across the Atlantic and one paper even goes so far as to say that "never before have men flown over the ocean."

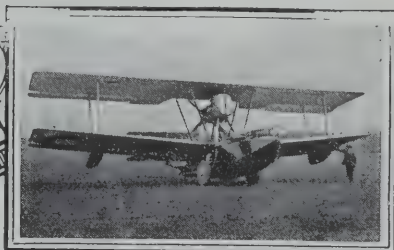
It is well to recall that as far back as July, 1919, the airship R-34, under the command of Major Scott, made the direct crossing of the Atlantic, leaving East Fortune on July 1, arriving at Mineola, L.I., on July 6, leaving again on July 9, and arriving at Pulham on July 13, the outward journey taking 108 hours and the return 75 hours.

Light Aeroplanes.

Mr. Bert Hinkler recently completed a longish cross-country flight on the Avro Avis, going from Lympne to Croydon thence to Farnborough and then on to Hamble. Throughout the flight the Cherub ran perfectly and Mr. Hinkler was able to maintain quite a high average speed.

The Blackburn Blue Bird has been flying quite strongly in spite of the fact that the engine is not yet giving its full output of power. This little machine, which is one of the prettiest of all the light aeroplanes, was designed by A. C. Thornton, of Blackburns, and was constructed under his personal supervision at Leeds.

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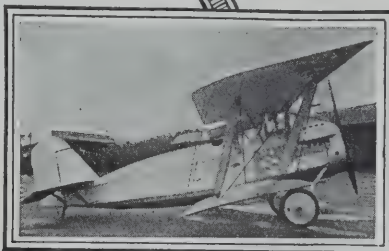


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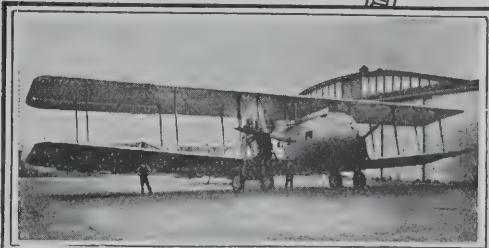
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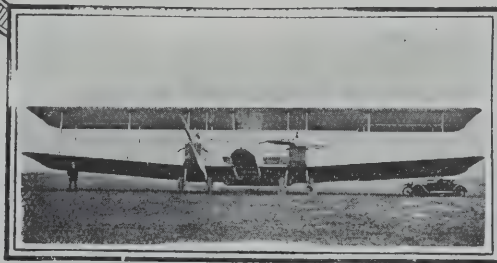
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE DAYTON FLYING MEETING.

By C. G. GREY.

AT DAYTON.

The City of Dayton is chiefly worthy of notice because it neglected the early efforts of its two most famous citizens, Messrs. Orville and Wilbur Wright (who were historically the first human beings to fly), and discovered them as objects of civic pride somewhere about the beginning of the War 1914-18, when there were war-contracts to be had as a commercial proposition. The city plunged into the war with both fists (in the international moneybags) and most of its citizens made vast wealth. Then or thenabouts a vast aerodrome was established some five or six miles from the city and called the Wilbur Wright Field in memory of the man who made the name of Dayton known to civilised communities and indirectly made the place wealthy.

Mr. Orville Wright, the first man to fly, still lives in Dayton, as entirely amiable and innocuous as was his wont. It is interesting to consider that after all the war flying and with all the civilian flying which is now being done the first person who ever left the ground in an aeroplane is still living and is still taking an intelligent interest in aviation.

For the rest Dayton includes the National Cash Register Company and the plant where the Delco ignition apparatus is manufactured. Both products are known in Europe. Young Mr. Patterson, a blameless youth, son of the founder of the Cash Register Co., happened to be elected Chairman of the National Aircraft Association of America last year, and the N.C.R. (as it is generally called) threw itself energetically into the task of making Dayton of some importance in modern American aeronautics. What more natural therefore than that permission should be obtained from the N.A.A. that the great race of the year, the Pulitzer Trophy Competition, open to the World and consequently international, should be held at Dayton, the birthplace alike of flying and of Mr. Fred Patterson?

That, so far as one can gather, is the chief reason why the Pulitzer Trophy Race was held at Dayton, though possibly the existence right in the city itself of McCook Field, which is the Farnborough and Martlesham combined of the U.S. Army Air Service, and, so far as one can gather, was founded during the War 1914-18 by the efforts of one Colonel Deeds, who otherwise is Delco Ignition, may have had something to do with the decision. For McCook was, one believes, responsible for tuning and re-furbishing the competing machines,—“Deeds not Words” might be its motto.

Outside that Dayton reminds one very much of Coventry. It is prosperous, not too violently progressive, and completely pleased with itself, with that perfect self-satisfaction which is only possible in a provincial community. It has about 200,000 inhabitants and seemingly each of them owns two cheap automobiles one of which is parked in the street while the other is in use. It even has, apparently, its own feminine fashions, which owe nothing to Fifth Avenue, the Rue de la Paix, or Bond Street. In fact it succeeds admirably in being satiatingly funny without being in the least vulgar. There can never be anywhere such a thoroughly nice town as Dayton, O.

To this provincial paradise came some hundreds of foreigners from the East. Manufacturers of engines and planes from New York. Scientists with water-cooled slide-rules from Boston. Sea-going folk from Philadelphia. Diplomats from Washington. And there came engineers from Buffalo and motor folk from Detroit and builders of aircraft from Cleveland. And so forth and so on till Dayton really believed itself to be the centre of the United States and therefore of the World. One verily believes that Dayton believes that all these folk came to see the Pulitzer Race because it was at Dayton and not that they came to Dayton because the Pulitzer Race was held there.

FOREIGNERS AT DAYTON.

Anyhow, there we all were settled for three days, which proved very interesting personally because one met pretty well everybody who is anybody in American aeronautics. And again, as in New York, one found oneself completely at home with them. Many of them were old friends of the war period. Others were men of whom one has heard for years as of importance in aeronautical history. From all of them one received the most kindly welcome. And judging by the way they all read *THE AEROPLANE*, as is proved by their quoting it, one is almost convinced that the paper has more readers in the United States than its total circulation—which is not so impossible as it sounds.

And here one would like to place on record the fact that the American aircraft man is a thorough sportsman like most of our own. Financiers, managers, designers, pilots and all, one can almost duplicate them man for man in the British Aircraft Industry. And collectively they have that same attitude of hoping for the best and preparing for the worst

which used to be so characteristic of the British Trade years ago, before it began again to wallow in the weak orders for the R.A.F.

WILBUR WRIGHT FIELD.

Of the actual racing at Dayton it is hardly worth to write, for it is of little interest outside Dayton. But well worth while to write a good deal of what one saw at the Wilbur Wright Field, for it was a kind of review of America's aviation except the Navy side of it. The field itself has an area of some 1,500 acres, some of which make good tennis courts and any of which is smooth enough for football. It is in fact the ideal aerodrome for any of work.

On the first day one was taken straight to the Hangars, the U.S. Army sheds, where one met several time friends, still flying and cheerful. On the way one passed rows of Martin twin-engined bombers, finely cleanly-designed craft which are a credit to that aeronautical pioneer, Glenn Martin, late of California, now of Cleveland. These were all ready for formation-flying later in the day.

Incidentally there was also a Martin “postalplane” with a Wright E-type (Hispano) engine, which struck one as doing a singularly good job. One hopes to describe it more fully at a later date.

Alongside them were ten of the U.S. Army's latest “pursuit ships,” the Curtiss P.W.8a, with the Curtiss D.12 engine, a combination which makes what is without argument the finest chaser aeroplane of to-day. Incidentally the “pursuit ship” is good and deserves to be used. It expresses exactly what it means. A “scout” is never used for scout. And a “single-seat fighter” may be a fighter only because it is too slow to run away. So “pursuit ship” let it be.

Moreover, one soon becomes accustomed to the word “ship” which at the finish is less ambiguous than is the word “machine” which in French does definitely mean the whole apparatus, as we speak of an “engine of war.” So use the word ship wherever it seems apt.

Incidentally the word “ship” to denote an aeroplane one believes, introduced to the States by one J. J. Hamlin, a crazy New Zealander who learned to fly in England during the War 1914-18, was the first man to fly in New Zealand. He joined the R.F.C. at the outbreak of war, did good service in France and as a test pilot and instructor and was sent to the States as an instructor late in the War because he had fallen out with nearly every senior officer in England. He was killed while flying a Bristol Fighter in the States.

He was a one of those wild yet likeable characters who nobody could command but almost anybody could lead. He had momentarily fallen out with his C.O. his pet name was,—“Dammie, I'll break all his blasted airships for him.” And he frequently succeeded. Anyhow it was after he came to the States that the word “ship” became popular in America. That, however, is by the way.

THE FASTEST PURSUIT SHIP.

These Curtiss pursuit ships have a speed which is 40 per cent an hour or so better than that of our machines which are suspected of being in the same class. Their average speed is about 170 m.p.h. and the best of them do 175 or so m.p.h. In spite of their speed they are beautifully manoeuvrable. On the first day of the meeting did everything with them that one has seen done with an aeroplane.

There is a prejudice in the Army, and apparently at McCook Field against the radiators, which form part of the wings in the Curtiss racers. It is said that they are too fragile for Service and that their great horizontal area makes them liable to be hit in war. Against that it is argued that wing radiators give a ship 12 or 15 m.p.h. extra speed. If they do, they are less likely to be hit, because they are always being chased the other fellow. Also, if a slow ship has wing radiators and is being attacked, the pursuer will fly into the fuselage in an effort to hit the pilot, so he is more likely to hit a nose radiator which covers the whole projected area of the fuselage than one which is above and below the fuselage.

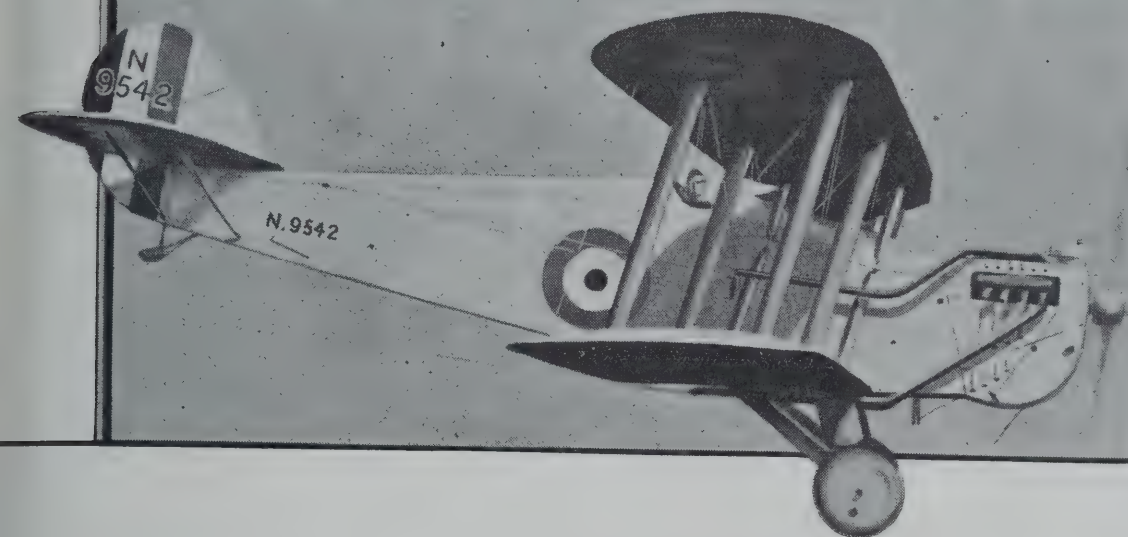
Personally one believes that they are worth while because of the extra speed.

A COMIC TRAGEDY.

At the end of the line of nice cleanly designed war machines was an aluminium apparition, the World-advertised Biplane bomber. A triplane consisting of a supposedly streamlined fuselage and a forest of struts and wires. A monument of misplaced ingenuity and mis-spent money, on which perfectly good Liberty engines have been wasted. A design which might well have been conceived by an imagination.

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tive artist in 1912 or thereabouts, constructional details worthy of the best builder of frame houses, and gadgets which look as if the whole of the mechanical and electrical trades unions had had a hand in them. The World's ugliest aeroplane and certainly the most useless ship that was ever persuaded into the air by a gallant and conscientious officer.

It is not even sufficiently funny to justify its cost, which is said to have been close on half a million dollars—say £100,000—for though it looks like a performing elephant it cannot stand on its head without endangering valuable lives. The only funny thing it did, and that was unintentional, was to stagger along at its full speed while a little Sperry Messenger with a tiny 3-cylinder pop-bottle engine flew over it in the same direction at about double the speed. We have had somewhat similar useless monstrosities in Europe from time to time, but none which have completely filled the bill in the competition for the World's Worst Aeroplane.

When one thinks of the number of really useful pursuit ships which might have been built with the money which has been wasted on this abortion—which the U.S. Army experts ought to have seen to be obviously worthless when submitted on paper at the start—one is not surprised that the U.S. Army aviators are moved to blasphemy whenever its unsightly carcass obtrudes itself on their vision.

THE PULITZER COMPETITORS.

Having climbed into and out of this aerial packing-case one was taken to a shed where all the competitors for the Pulitzer Trophy were housed. These consisted of the two old Army Curtiss racers of 1922, each newly fitted with a Curtiss D.12 engine, over-bored by fitting larger sleeves to the cylinders, and the 1922 Verville-Sperry monoplane, also with an over-bore D.12.

The Curtiss Navy racer, which won the Pulitzer Trophy last year had been fitted with floats for the Schneider Trophy race this year. And Lieut. Pearson, U.S.N., had been killed a week or two earlier flying the other Curtiss Navy racer of last year. So these three old ships were all that remained to fight for the 3,000 dollar prize—the biggest ever offered for an aeroplane race in the States.

They looked in good enough form, but the Army people who were with us were distinctly of the opinion that it was not safe to fly them at top speed after all the flying, and incidentally the hard stunting, they had done in the past two years. Still, there was nothing else available, and the Army could not afford new racers, so the old-timers had to be put into service again.

CIVIL RACING.

Outside the sheds were sundry Curtiss Orioles and odd craft getting ready for a race. As such the race was uninteresting. The turning pylons were miles away out on the field, instead of being placed so as to give spectators a "close-up" of the machines, and anyhow few of the ships were themselves of interest. By far the most interesting was the winner, a faked Curtiss Oriole flown by "Casey" Jones, who is generally recognised as being the foremost commercial pilot in the States, a kind of American Alan Cobham.

Casey Jones had already won the "On To Dayton" competition, for the best speed over a distance exceeding miles to Dayton. He had flown from Selfridge Field on Monday and on arrival he had been told by the Day officials that the distance was only 196 miles. So he telegraphed to the United States Survey Department for verification of his distance, and pending their reply hopped over to Rentoul Field, which was known to be over 200 miles away and flew back on the Wednesday, which is genuine commercial aviation. And he proved to be right about Selfridge distance anyhow, which was a bit of a blow to officials.

His Oriole has wing radiators, the centre section has been cut out of the top plane and the wings joined in the middle. The lower wings have been cut down to mere stubs, and has a Reed metal airscrew. With a Curtiss C.6 engine, rated at 160 h.p., but put down officially at 143 h.p., the normal speed of the ship, carrying the pilot and two passengers is 130 m.p.h. His speed in the "On To Dayton" competition was 148 m.p.h. over the 200 miles—with a useful wind behind him.

The C.6 is a neat simple six-cylinder-in-line engine designed for training ships. It strikes one as singularly suitable for taxi-planes. And it has proved itself to be very reliable. A speed of 130 m.p.h. with a standard machine very slightly faked for the race, shows what we ought to be able to get out of commercial aeroplanes when specially designed for high efficiency.

AN ARMY DISPLAY.

After the race there was a very pretty display by Army pilots. A queer-looking machine remotely resembling a Martinsyde gave a show of smoke-writing—presumably an arrangement with Major Savage. It flew quite low down along the front of the crowd and looped and did Immelman turns and so forth so that its path through the air, as marked by the smoke trail, could be clearly seen. Something of the sort elaborated would be worth doing at the next R.A.F. Pageant.

A formation of D.H.4s with Liberty engines—looking remarkably like our gas, except that they had rational radiator instead of the mattresses which our experts insist on fitting. They did not quite do the things which 39 and 207 Squadrons do, but they kept very good formation.

Three pursuit ships, Thomas-Morse M.Bs., also gave a pretty display, flying round in close formation with the wing-tips of the two outer machines linked to the leader by ribbons. And two formations of three each of the same type also did well.

Following them, Capt. Burt Skeel on a Curtiss P.W.8 gave one of the best displays of stunt flying one has ever seen. His upward vertical spins were something one had not seen before. And he did four successive rolls, only losing a little height on the last. Certainly he proved that the P.W.8 is as sides being the fastest Army aeroplane in the World is as manoeuvrable as the slowest.

(To be continued.)

LARGE ALL-METAL SEAPLANES.

The lecture under the above title given by Dr. Rohrbach before the Royal Aeronautical Society on Thursday was of particular interest, as giving a very clear exposition of the point of view of one of the most progressive aircraft designers of the German school.

Dr. Rohrbach said that experience with all-metal construction indicated that using all-metal construction a saving in structure weight of from 10 to 15 per cent. for equal strength should be attainable as compared with wooden structures. In seaplanes there was the additional saving caused by the absence of water soakage. Consequently the idea of building very large seaplanes of metal was an obvious and attractive one. But when it was attempted practical difficulties intervened. On the other hand, the large seaplane had advantage as an experimental type, for the cost of development work did not necessarily increase with size, and the large seaplane was in some ways less expensive than an equally large land machine.

Having decided upon all-metal construction there were three alternative systems which might be followed:—All steel, mixed steel and duralumin, or all duralumin. The steel machine led to difficulties owing to the thinness of sections that must be employed. The mixed steel and duralumin was liable to give serious corrosion troubles due to electrolytic effects at junctions between the steel and the aluminium alloy, and also undue weight at all such junctions, because the size of rivets and the contact area at joints had to be determined by the qualities of the weaker material, and the steel fittings therefore were larger and heavier than they would need to be if they were attached to steel members.

The all-duralumin system permitted the use of thicker

material, and the increased stiffness allowed one to use simple sections mostly built up from flat plates.

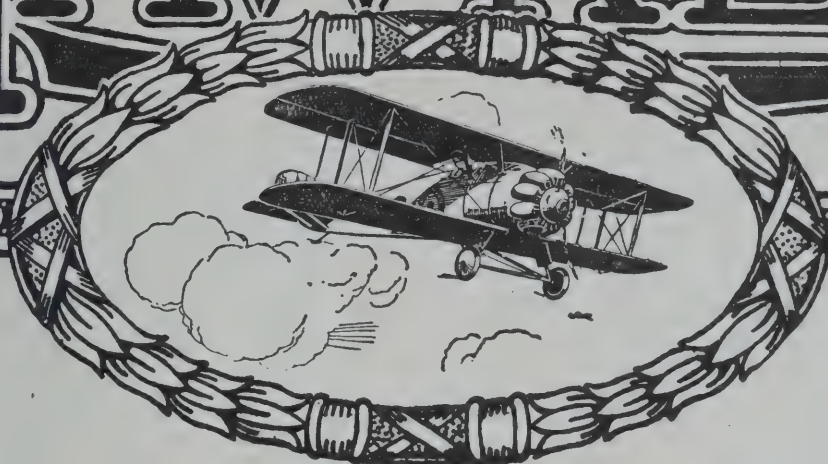
If however one tried to build a large all-metal machine using the same wing loadings as were employed on our present-day aircraft, structure weights became impossible, particularly those of the stressed skin of wings, and the logical conclusion therefore was that for large machines wing loading must be increased. That is, the larger machine must be built of relatively smaller dimensions, which leads to decreased stresses for a given total weight, and to a better thickness/length ratio for all members and therefore to a higher safe working stress in the materials. The resulting smaller machine was cheaper to build, more easily handled and housed, had a higher speed and was more manoeuvrable. Also for the same total weight the available payload was higher the higher the loading.

If one adopted this solution of increasing wing-loading with increasing size of machine, both the run and the time to get off would increase, and of course the landing speed would increase.

Dr. Rohrbach admitted that these were disadvantages, but he did not believe that even in the case of land machines these disadvantages would prevent the development of large machines along the line of increasing wing-loading. After all there was always plenty of room and plenty of time to get off and to land, and in the case of the seaplane they were relatively minor disadvantages.

One particular advantage of increasing wing-loading with size was that the ratio of the radius of the minimum turning circle to the span of the machine could be kept nearly constant, whereas with equal loading the turning circle

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Hawker, Kingston-on-Thames.



creased much more rapidly than the span. In this connection he had investigated the effect on manoeuvrability of dihedral angle, and showed curves of angular velocity against time with a fixed rudder and aileron setting for a particular machine with 2° and with 6° dihedral. The difference was most marked, the machine with the 6° dihedral started to turn and bank in the correct direction practically instantaneously, that with 2° made an initial oscillation in the wrong direction and turned at a much slower rate than the 6° machine. Incidentally, Dr. Rohrbach said that a difference of dihedral of as little as 0.2° would sometimes make a marked difference in the controllability of an aeroplane and that this fact probably accounted for the very great differences observed in the controllability of apparently similar machines.

Another question to be considered was whether the machine should be a monoplane or a biplane. In the case of the Rohrbach R.O.II. seaplane he had taken out preliminary designs for both types. The biplane would have weighed some 300 kg. less, but its top speed would have been but 165 km./h. (102 m.p.h.), and its ceiling 1,300 m. (4,300 ft.) against 187 km./h. (116 m.p.h.), and 3,000 m. (9,840 ft.) for the monoplane.

The machine as actually produced is a cantilever monoplane with a narrow flat-bottomed central hull, and a pair of Rolls-Royce Eagle engines carried above the wings on tubular mountings. Below each engine mounting there is a large side-float. This three-float arrangement had proved thoroughly seaworthy.

The wings have a very large dihedral angle and are composed each of three sections—a detachable nose, a central girder section, and a detachable trailing edge. The central girder section is a box with a lattice plate girder at front and rear joined by the skin plating top and bottom. Fore and aft members between the skins serve to maintain the shape and to stiffen the skin. The nose and tail portions are in short sections and can easily be turned out of place on hinged joints for examination of the main girder.

A somewhat unusual feature of the machine is the tail unit. The whole tail—fixed tail plane, elevators, fin and rudder—are carried above the hull on a sort of mast provided with top and bottom bearings, and the whole tail can be rotated through 5° on either side of normal by a lever in the pilot's cockpit. This gives sufficient helm effect to off-set the moment due to stoppage of one engine and allows straight flight with one engine only with no load on the rudder bar.

The lecture was illustrated with a number of interesting photographs of this machine, two of which showed the machine sailing under a couple of small sails on light pole masts rigged one in the forward and one in the after cockpit. Dr. Rohrbach said that it was possible to make 4/5 knots in a moderate wind, and that the machine could be sailed quite close to a wind without making noticeable leeway. As the lecturer pointed out, although sailing a flying-boat sounded rather absurd, the ability to do so might occasionally be extremely useful. If it did nothing else it would allow such a machine to remain afloat and under control for considerable periods without using any fuel, which would be of some importance in certain naval operations.

Finally a film of the machine taking to the water, "taxying," and flying was shown. In part of the film the machine was shown in quite a nasty chop, and her behaviour in the water was undoubtedly good. There is a good deal of spray thrown up at moderate speeds, but the machine planes cleanly and without signs of porpoising, and appears to fly and handle excellently.

THE DISCUSSION.

Mr. W. O. Manning said Dr. Rohrbach was working along new lines in several respects and the results were undoubtedly interesting. He wondered why he used rectangular untapered wings. They were cheaper than tapered wings, but they were also heavier, and on big machines cost scarcely counted when weight could be saved. What precautions had he found necessary to protect duralumin against corrosion in contact with sea water?

Also with the very great dihedral what happened if the machine was moored in a tide running across the wind? Was there not a risk of blowing over on to the leeward wing tip? And had Dr. Rohrbach had difficulties with torsional loads on his wings?

Mr. J. D. North said it was difficult to discuss a paper without having had an opportunity of reading a copy beforehand, but there were some questions he would like to ask. Dr. Rohrbach claimed that the smaller heavily loaded machine required the same thrust as a larger more lightly loaded machine at a higher speed, and that therefore the fuel consumption for a given distance remained the same. But if the weight were the same the smaller span machine had a higher induced drag. Then if the spans were the same

the biplane had a smaller induced drag than the monoplane but Dr. Rohrbach claimed that the monoplane gave the performance. What was his basis of comparison? He thought Dr. Rohrbach had produced a machine whose assembly and construction could be regarded as a remarkable engineering feat.

Flt. Lt. D. Lucking said that few people realised the importance of the soaking of water into large seaplanes. He had weighed an 18,000 lb. flying-boat, first several months in a dry shed, and secondly after it had been afloat for some time. The difference of weight was 1 lb. At the time he did not believe these figures, but an independent test of a similar nature gave practically the same result. This in itself was a strong argument in favour of the metal seaplane.

Dr. Rohrbach's claims in regard to the advantage of light loading were of great interest, but he thought the problem of getting off was a serious one. Experience seemed to indicate that light loading was essential if one had to get off a really rough sea.

Wing Cdr. T. R. Cave-Brown-Cave inquired as to the worthiness of the Rohrbach three-float system. Did it make comfortable riding in a really rough sea? The big difference in the wings well clear of the water, but with so much of a float base he would expect the machine to blow overboard in a strong side wind. He was greatly interested in the hull bottom. In this country we had to make it essential to avoid flat bottoms.

Dr. Rohrbach, in reply, said that Mr. Manning was in saying that the tapered wing saved weight and gave improved efficiency. But accurate manufacture was imperative in metal construction, and building in large numbers the cost of jigs for the tapered wing became prohibitive. The difference of weight is not more than 3 to 4 per cent. Corrosion was not serious if the same alloy was used throughout—including rivets—and a reasonably good protective coating was used. It was important to put an insulating layer between joints in the material, otherwise electrical corrosion occurred.

The problem of providing adequate torsional strength in the wings had been solved by tests on models, and he could now calculate the torsional strength and stiffness of the wings actually used with sufficient accuracy for practical purposes.

The big dihedral did give large rolling movements in strong winds, but the three-float system gave ample lateral stability.

In reply to Mr. North's inquiries, all the monoplane comparisons were made between geometrically similar machines. The biplane had been compared with the monoplane on a basis of equal loading and therefore equal landing speed. It therefore was of smaller span than the monoplane. Had the biplane been of the same span its performance would have been better, but its weight would have been greater.

As to the question of getting off raised by Mr. Lucking, the question was one of proper proportioning of the loading to the wing loading. If the loading on the wings was increased with the wing loading it became possible to make the bottom sufficiently strong. For low loading and low getting off speeds it was impossible to make flat bottoms without excessive weight, and the Vee type was essential.

As to the behaviour of the three-float system in strong winds, the machine in question had been taxied in a sea of strength 3 to 4 with a wind of 15 m.p.s. (33 m.p.h.). It could be turned from down wind to up wind easily and the landing wing never became even horizontal.

Col. Ogilvie (Chairman), moving a vote of thanks to Dr. Rohrbach's courage in addressing the meeting in a foreign language was on a par with that shown by him in designing the Rohrbach seaplane. It was not at all possible to predict what the ultimate solution of the biplane problem would be, but the lecturer had at least produced a thoroughly well worked out design. He agreed that the only chance of making a successful machine of the type lay in the adoption of high loading.

New Technical Literature.

The Aeronautical Research Committee—R. & M. No. 90. Hydrogen Explosions in Closed Vessels. By W. R. Fennings. 2s. net.

R. & M. No. 913.—The Distortion of a Stiff Jointed Polygonal Frame under loads applied in its Plane. By A. Pippard and P. F. Foster. Price 1s. 3d. net.

R. & M. No. 914.—Notes on the Application of the Vortex of Aerofoils to the Prediction of Downwash. By L. F. G. Smith and E. Ower. Price 6d. net.

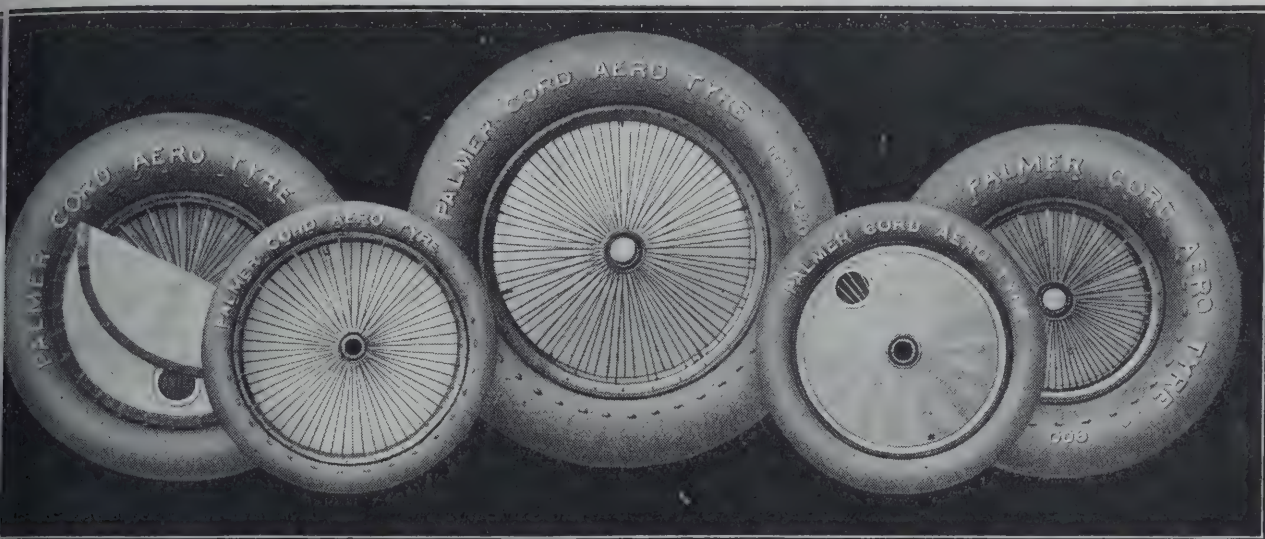
The Royal Aeronautical Society.

The next lecture will take place in the Library of the Society, at 7, Albemarle Street, W.1 at 5.30 p.m., on Thursday, Oct. 30, when Major J. S. Buchanan, Associate Fellow, will read a paper on "The R.Ae.C. Light Aeroplane Competition."



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Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore				Length	Bore				Length	Bore	
75x55	168	111.12	25.4	Central	700x100	96	178.	55.	132/46	1000x150	201	185.	60.32	125/60
100x60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	1000x180	148	220.	80.	Central
150x60	30	89.	31.75	Central	650x125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
175x60	21	160.	28.	Central	750x125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900x200	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
200x75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
200x75	78	178.	44.45	132/46	800x150	82	185.	55.	135/50	1100x220	134	220.	66.67	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	"	136	250.	80.	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	1250x250	133	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
200x100	77	178.	44.45	132/46	1000x150	131	220.	66.67	Central	1500x300	115	304.8	101.6	Central
"	92	185.	55.	135/50	"	150	185.	55.	Central	"	126	304.8	152.4	Central
"	95	185.	55.	Central	"	167	185.	55.	125/60	1750x300	139	400.	152.4	Central
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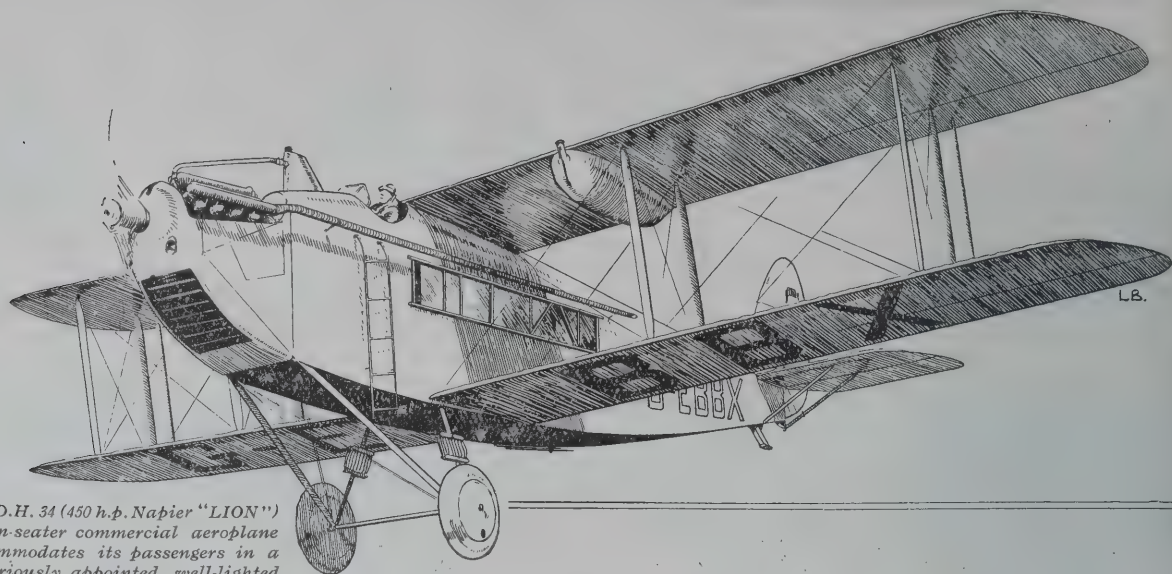
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COMMERCIAL AIRSHIPS.

a paper entitled "Commercial Airship Design," read on May, Oct. 17, before the Institution of Aeronautical Engineers, Commander F. L. M. Boothby said that it was not expected that commercial firms would start running airship lines until they were satisfied that aeronautical engineers would provide airships which would attract passengers. To attract passengers the airship must fulfil four requirements. It must be structurally strong, safe against uncontrollable in any weather and cheap to run.

STRENGTH.

Experience had shown that airships can be made amply strong if half the total displacement is devoted to hull and engines. The new commercial Zeppelin, Z.R.3, showed proportion, and with bigger ships it would be possible to reduce the proportion of the weight devoted to hull. It was as yet too early to form a definite opinion as to whether the rigid or the semi-rigid type was the best. For smaller sizes at least he personally inclined to the semi-rigid. The new Parseval type with a continuous metallic keel and gas-bags under steel nets, with an outer cover over which gave a space all round which could be filled with hydrogen gas, should be simple and inexpensive to maintain. The whole of the metal girder work could be kept under constant supervision, which was not the case with the rigid. The advantages and disadvantages of the two types were nicely balanced, that until a ship of each type, of similar size and employed on the same service had been tested over a long period, it would be impossible to decide between them.

PROTECTION AGAINST FIRE.

For safety against fire the most pressing need was the protection of petrol. The simplest and most direct way was to use heavy oil engines, such as the Beardmore type. Another way was to use hydrogen from the gas-bags in conjunction with heavy oil in an ordinary engine, and a third way was to employ a new process—not yet introduced to the public—for gasifying crude oil. Before discussing the merits of these systems the protection of the hydrogen against fire by surrounding the gas-bags with a layer of inert gas, required to be considered. Various methods had been suggested, but the simplest and most efficient seemed to be that of using the engine exhaust gases for the purpose. Only a portion of the exhaust would be needed, and there was no serious difficulty in cooling and using the required quantity. Only when the ship was stopped rapidly would the supply of exhaust gas be insufficient to keep the space filled and some air would then have to be admitted.

This inert gas protection only failed as a fire protection for gas when a stream of incendiary bullets was concentrated on one spot and hydrogen squirted out into the air was ignited outside the ship. One did not expect the commercial airship to be subjected to this form of attack. It was very important to supply inert gas to the exhaust gases of the gas-bags. It was usual to scour these with air to prevent an explosive mixture remaining in them, but never a gas valve was opened an explosive mixture must be formed. The stream of hydrogen passing out was a good conductor of electricity, and if any atmospheric discharge came down it and met an explosive mixture in the trunk a violent explosion would occur. This was a possible explanation of the loss of the Dixmude. If the trunks were supplied with exhaust gas there should be no danger.

THE USE OF HEAVY OIL.

Turning to the alternative systems of dispensing with petrol, the heavy-oil engine did not give the greatest economy in running. For every ton of liquid fuel consumed, 33,000 cubic feet of hydrogen gas had to be got rid of. Hitherto it had been necessary to waste this gas, to vent it to the ship in trim. Thanks to the Eastern Asiatic Oil Company and Mr. Ricardo, it had been found possible to use a mixture of this hydrogen and kerosene, or gas-oil, in the engine, instead of using petrol and wasting gas. There was thus a marked economy in both liquid fuel and gas. The new process of using crude oil could not at present be described. It could be said however that a generator burning 50 lbs. would gasify 60 gallons of oil per hour, and the gas, if used in an ordinary petrol engine, would give 10 per cent. of the normal full power. Hydrogen could also be used in conjunction with this gas, and would allow full power to be developed. Despite the low cost of crude oil the system was not quite as economical as the other oil engine system, and a greater weight of fuel oil had to be carried, reducing the paying load. There were however other possibilities to this process. The ordinary way an airship carried 10 to 15 per cent. of its total lift in the form of water ballast. If crude oil was carried instead it could be gasified and stored in compartments in the gas-bags until required for the en-

gines. The gas was slightly lighter than air and so the dead weight disappeared although the fuel was still available. This system only allowed one to lose ballast relatively slowly, and in emergency it might be necessary to discharge the oil as one did water ballast. But in Commander Boothby's opinion sudden emergencies should be dealt with by swivelling propellers. It is true that as airships increased in size, the proportionate engine power, and, therefore, the lift that could be obtained from a swivelling airscrew, would decrease, but even in a ship of the size of Z.R.3 one could obtain a lift equivalent to the discharge of five tons.

On the economic side swivelling propellers were worth using. A ship without them leaving a mooring mast with full load and full gas had to force herself up to a safe flying height, say 2,000 feet, using elevators and engines. This would necessitate blowing off 6 per cent. of her gas—or for an 80-ton ship, 158,000 cubic feet, costing £39 10s. With swivelling propellers she need not take on this gas at all, as no initial lift would be needed.

ECONOMY OF CREW.

Another point was the need for economy in crew. In British and German service airships, two men per engine plus an engineer officer, together with nine other officers and men were carried. By care in design one man per engine and one engineer officer should be enough. Also it was usual to have one navigating officer, one man on the helm and one on the elevator. In small ships one man combined all these duties for long periods, and given proper relays in the controls one man could operate all controls in even the largest ship. There was also no reason why the control position in commercial ships should not be moved to right aft. There was plenty of room for a control position inside the modern type of streamline fin and this arrangement would avoid long control leads and trouble with slack in them.

One thing that was really wanted was a process by which an airship could manufacture its own hydrogen.

Light Aeroplane Speeds.

Of the total number of machines entered for this year's Lympne Competitions only very few actually passed all the tests and there is a good deal of doubt as to the real performance even of those which did. The race for the Grosvenor Challenge Cup however supplied figures as to speed for many machines which never flew round the course on the high-speed test during the competition proper, and it is therefore thought that it may interest some readers to publish the more important of the figures as to speeds attained in this race. It will be remembered that the race was over eight laps of a 12½-mile course, a total distance of 100 miles. In the following list the times and speeds for the whole distance, and for the fastest lap for each machine which completed the distance, and for the fastest lap in those cases where the machine retired are set out in the order of entry.

Westland Woodpigeon (Cherub engine).—Eight laps in 1 hr. 37 mins. 31 secs. Speed 61.53 m.p.h. Fastest lap 11 mins. 31 secs. Speed 64.8 m.p.h.

Avro Avis (Cherub engine).—Eight laps in 1 hr. 31 mins. 5 secs. Speed 65.87 m.p.h. Fastest lap 11 mins. 12 secs. Speed 67 m.p.h.

Westland Woodpigeon (Blackburne engine).—Eight laps in 1 hr. 44 mins. 39 secs. Speed 57.33 m.p.h. Fastest lap 12 mins. 19 secs. Speed 60.9 m.p.h.

Supermarine Sparrow (Blackburne engine).—Eight laps in 1 hr. 36 mins. 39 secs. Speed 62.08 m.p.h. Fastest lap 11 mins. 51 secs. Speed 63.3 m.p.h.

Vickers Vagabond (Cherub engine, geared).—Eight laps, unfinished. Fastest lap 10 mins. 58 secs. Speed 68.4 m.p.h.

Bristol Brownie (Cherub engine).—Eight laps in 1 hr. 25 mins. 36 secs. Speed 70.09 m.p.h. Fastest lap 10 mins. 27 secs. Speed 71.8 m.p.h.

Parnall Pixie III (Cherub engine).—Eight laps in 1 hr. 26 mins. 26 secs. Speed 69.41 m.p.h. Fastest lap 10 mins. 32 secs. Speed 71.2 m.p.h.

Short Satellite (Cherub engine).—Eight laps in 1 hr. 29 mins. 5 secs. Speed 67.35 m.p.h. Fastest lap 10 mins. 55 secs. Speed 68.7 m.p.h.

D.H. 53 (Blackburne Tom-Tit).—Eight laps in 1 hr. 11 mins. 11 secs. Speed 67.27 m.p.h. Fastest lap 10 mins. 49 secs. Speed 69.5 m.p.h.

Vickers Viget (Blackburne engine).—Eight laps, unfinished. Fastest lap 11 mins. 17 secs. Speed 66.6 m.p.h.

Hawker Cygnet (Anzani engine).—Eight laps, unfinished. Only lap 13 mins. 4 secs. Speed 55 m.p.h.

A.N.E.C. (Anzani engine).—Eight laps, unfinished. Fastest lap 10 mins. 34 secs. Speed 71 m.p.h.

R.A.E.C. Hurricane (Cherub engine).—Eight laps, unfinished. Fastest lap 9 mins. 23 secs. Speed 80 m.p.h.

Parnall Pixie II (Blackburne Vee engine).—Eight laps in 1 hr. 16 mins. 5 secs. Speed 78.86 m.p.h. Fastest lap 9 mins. 22 secs. Speed 80.08 m.p.h.



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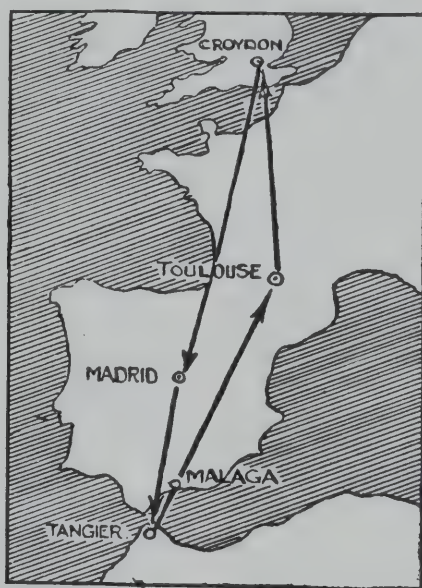
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The Laurentide Air Service.

In January 1922 the Laurentide Air Service was formed as a branch of the Laurentide Company, one of the biggest pulp and paper manufacturing companies in Canada. As such it was the first company formed in Canada to operate aircraft on other than joy-riding work, its object being to supply a growing demand among pulp, paper and lumber companies for aircraft services in connection with their woods operations as previous individual experiments had proved that owing to lack of volume of work and a greater lack of operating experience their costs were prohibitive in comparison with the results obtained.

During the 1922 season the Laurentide Air Service operated five flying boats—three H.S.2Ls, one Vickers Viking-Napier Mark IV and one Loening Air Yacht. These machines were engaged on fire patrol, aerial photography, aerial timber cruising and general forest reconnaissance. During the early part of the season Avros of skis were operated between Cochrane on the Transcontinental Railway and Moose Factory on James Bay, a distance of roughly 150 miles, thus maintaining communication between the Hudson Bay Company and other residents at Moose Factory and civilisation.

In the season 1923 the amount of work offered increased to such an extent that the Laurentide Company purchased 14 new aircraft of the H.S.2L type, which were operated to their full capacity.

During the winter of 1923-4 the Ontario Provincial Government, who were the largest customers of the Laurentide Company, decided to operate their own flying department, and for this purpose purchased from the Laurentide Company 13 H.S.2L flying boats and for the remainder of the season the Laurentide Co. operated the remainder of their fleet to maximum capacity on forest operations and general transportation.

The large expansion since the inception of the Company necessitated the provision of larger shops and increased hangar accommodation. A permanent base was secured at Three Rivers, P.Q., and complete facilities were installed for the construction and reconditioning of any type of aircraft or engine. In addition to the reconditioning and building to their own requirements the company are at present rebuilding a number of Avro 504Ks for the Royal Canadian Air Force and present indications are that they will be undertaking considerable new construction on their own account during the coming winter.

During the period 1922-23 mentioned above the Laurentide Air Service has flown a total of 2,807 hours, losing during this period two H.S.2L flying boats and the Loening Air Yacht. These accidents however did not involve the loss of a single pound of cargo or injury to personnel or passengers.

In the spring of 1924 the Laurentide Air Service were approached by certain mining interests with a request that they inaugurate a transport service between the Canadian Pacific and Canadian National Railways and a new gold district which was in process of exploration in Timiskaming, Northern Quebec. The possibilities of this venture were investigated and on May 15, 1924, one machine was put in operation on the service as an experiment.

The volume of business increased to such an extent that they are now operating three machines and intend to continue the service throughout the winter.

As the field developed in importance increasing numbers of prospectors and operators found their way into the district and it was not long before there was a demand for an air-mail service. The Post Office were approached with a request that the company be granted a contract for the carriage of mails on their daily air service. With the absence of a precedent the Post Office were dubious, but continued efforts on the part of the Company resulted in their being given a concession.

The regular service is operated with Vickers Viking amphibians and runs between Angliers, Que., and Lake Fortune and Rouyn and Haileybury, Ont., and Lake Fortune and Rouyn. The aircraft leave Angliers and Haileybury at 08.00 hours, arrive at Lake Fortune at 10.00 hours and 10.15 hours respectively, leaving again half an hour later and arriving back at Angliers and Haileybury at 11.30 hours and 12.00 hours respectively.

The passenger fares between Angliers and Lake Fortune and Haileybury and Lake Fortune are \$40 and \$60 respectively and every passenger is allowed 25 lbs. of baggage free, with an excess rate of 20 cents per pound.

The freight rates for parcels not exceeding 100 lbs. are 20 cents per pound with a minimum of \$2.50 per parcel, with a charge of 17 cents per pound for shipments of 100-500 lbs., 15 cents for shipments of 500-2,000 lbs., and 10 cents for loads of over one ton.

In competition with this air service there is a boat service operating from Angliers via Lac des Quinzes and the Kenogewis river to Rouyn. This service involves the transfer of passengers and goods to four different boats and takes two

days whereas the Laurentide Air Service aircraft fly the distance regularly in 50 minutes.

Up to Sept. 17, 750 passengers and 33,147 lbs. of ex-goods, including such articles as air-compressors, etc., have been carried by the service.

Russian News.

According to recent statistics, the number of members of the O.D.V.F.—Friends of the Red Fleet Association amounted to 963,000 and for the year ending Apr. 30, this association had raised a sum of approximately 3,500 roubles, which amount has been spent on the construction of over 100 aircraft for the Red Air Fleet.

Through its 5,300 branches established throughout Soviet republics the O.D.V.F. is making every effort to popularise aviation. Aeroplanes covered with posters, inviting peasants and workers to join the Association are exhibited to the public in populated centres, and in the squares of the towns there are often to be found big scopes, which are available for all to watch the evolution of aircraft which fly over the towns giving exhibition flights. One Junkers aeroplane belonging to the O.D.V.F. started its last May on a tour of propaganda visiting Nijni-Novgorod, Kazan, Simbirsk, Samara, Saratoff, and Tzaritzin. In August this machine had flown a total of 80 hours, of which were made up of short passenger flights.

As regards the Red Air Fleet, a "Lenin" squadron delivered by the O.D.V.F. to the Trotsky aerodrome at Moscow in June. A week later the O.D.V.F. delivered machines to the "Ilich" squadron at Odessa. The machine for the "Lenin" Squadron No. 2 are under construction. The branch of the O.D.V.F. in the Far East is having aircraft built with funds collected by its 13,000 members and representatives of the Soviet Republics abroad have to the O.D.V.F. a sum of 33,484 dollars to be used in the purchase of an aeroplane to be named after Worowski.

Availing itself of a decree issued by the People's Commissary Council of June 13, 1924, the O.D.V.F. is organising a light aeroplane competition open to (1) single-seater aircraft with engines of not more than 10 h.p., having a maximum speed of 53.1 and a minimum speed of 34.4 m.p.h., and (2) two-seater aircraft with engines of 10-25 h.p. possessing a maximum speed of 47 and a minimum speed of 37.5 m.p.h. Prizes amounting to 3,000 gold roubles will be awarded to the winning machines which must be entirely Russian.

Concerning the Soviet Aircraft Industry, the "Red Aviation" Aircraft Factory of Leningrad has built four observation aircraft for the air stations of the Baltic and several all-metal aircraft designed by Ing. Tupolev were tested recently at the Trotsky aerodrome, Moscow.

The "Bolshevik" factory, formerly Gnôme, of Leningrad has taken up the construction of Liberty aero engines, three plants for the extraction of gasoline from gas-oil, and being established in the district of Grozni.

For the quarter ending June 30, 1924, Russia has ordered 100 aircraft in Holland, Italy and Switzerland 730 aircraft.

The inauguration of a civil air line between Charkoff and Kiev is announced and work is in progress on the proposed air line between Poltava and Kiev.

The Soviet Bukara republic is preparing an air service between Bukara and Diussambe, a distance of 750 versts (miles). 200,000 gold roubles to meet the preliminary expenses have been collected.

Steps in connection with the establishment of aerial communications between Charkoff and Sinferople, Tashkent, Vernii, Moscow and Kazan and Astrakan, are proceeding satisfactorily. Experimental flights on the Charkoff-Sinferople line are being carried out with a Dornier "Konstantin".

A Magazine of Air Travel.

"Airways," a new sixpenny monthly magazine, edited by Mr. G. H. Saxon-Mills and published by Newton and Co. of 48, Russell Square, is an attempt to bring before the general public the advantages and possibilities of Air Transport. It is not in the very least a technical publication, but even those who are well acquainted with the technical side of aeronautics will find it interesting.

The paper is excellently printed and produced, and readers of THE AEROPLANE should find it a useful medium for attracting the attention of their more terrestrially-minded friends to the growing importance of Aerial Transport.

The Air Union.

Particulars of the Air Union were filed on Oct. 11, pursuant to Section 274 of the Companies (Consolidation) Act, 1908. The company was incorporated in France. The British address is at 32, Haymarket, S.W.1, where P. E. Grosfils is authorised to accept service of process and notices on behalf of the company. The directors are:—J. Level, industriel; Bleriot, industriel constructeur; H. Bouchayer, industriel; L. Breguet, industriel constructeur; M. Davies, banquier; A. Verdurand and A. Gauchet, all of Paris; and L. Renault of Villancourt (Seine), industriel constructeur. A memorandum nor Articles of Association yet filed. The number is 2,372F.



D.H.9 seaplane (240 h.p. Siddeley Puma engine) piloted by Mr. Hubert Broad, about to take off from the River Medway at Rochester.

De Havilland Seaplanes.

Experiments have recently been carried out by the De Havilland Aircraft Co. Ltd. with a D.H.9. fitted with sea-foats, and exceedingly satisfactory results have been obtained. The foats were designed and built by Short Bros. at Rochester and the flying trials were carried out from the slipway on the River Medway at Rochester. The set of foats were of the ordinary wooden construction. Experiments are being made in metal construction and a set of metal foats will be tested shortly fitted on a D.H.50. The D.H.9 with which the first experiments were made had a standard Puma-engined machine and it weighed fully 3,900 lbs. This was made up as follows: Weight of machine (including water) 2,900 lbs., petrol (55 gals.) 395 lbs., oil (5 gals.) 80 lbs., pilot 180 lbs., and paying load 345

With this load the machine showed a maximum speed of 100 m.p.h., a cruising speed of 90 m.p.h., with a top speed of 100 m.p.h. at 10,000 feet. The climb to 5,000 feet took nine minutes, and to 10,000 feet 32 minutes, while the machine showed a rate of climb at ground level of 600 feet per minute. The D.H.50 which weighs some 40 lbs. more than the D.H.9 and which carries an additional 220 lbs. useful load, making the total loaded weight, 4,160 lbs., it is estimated that a top speed of 104 m.p.h., a cruising speed of 90 m.p.h., and a speed of 100 m.p.h. at 10,000 feet would be obtained, which is the same as for the D.H.9. While the rate of climb at ground level would be 550 feet per minute, the time to 5,000 feet 13 minutes, the time to 10,000 feet 35-40 minutes.

These figures open up a new sphere for the highly successful D.H.50. As a land machine the D.H.50 has proved itself one of, if not the most successful commercial machine of its size in the world and now that it can be regarded as fitted with either a land or float undercarriage is very well adapted to the credit of the De Havilland Aircraft Co.

Two Strenuous Tests.

The Jupiter radial air-cooled engine of 400 h.p. which is in this country by the Bristol Aeroplane Company, and was made by the Société des Moteurs Gnome et Rhone under license from the Bristol firm, was the first, and is so far the only air-cooled engine which has successfully essayed the full type tests of both the British and the French Governments. This feat was performed over a year ago, and since it has been recorded in this paper that the same type engine had completed a second British official test of 150 hours at 90 per cent. full power.

It was recently still a French-built Jupiter, selected by the French Government inspectors from a batch of production machines, was subjected to another 150 hours' test. The run was made in four stages with a strip and examination between each stage, with a time limit of 18 hours for each examination and rebuild. The runs were at 90 per cent. full power on a calibrated airscrew, and were of 10 and 40 hours' non-stop duration, with one 40-hour non-stop run. In addition two full-throttle runs of an hour each, one on full throttle at maximum r.p.m. were included, and a power curve was taken at the end of the whole series. At the end of the engine gave 400 b.h.p. at 1,600 r.p.m., and 435 b.h.p. at 1,750 r.p.m.

For experimental purposes a different make of ball thrust was used during each of the four stages. The only replacement proper during the whole test were two outer valve

springs, ten rocker-adjusting screws, and 16 piston rings, the latter damaged in the course of stripping. There were no involuntary stops and the engine ran with extreme regularity and freedom from vibration.

A further Jupiter test, which is perhaps even more convincing because it took place under actual flying conditions has just been completed by Imperial Airways, Ltd. The subject of this test was Jupiter engine, Series IV, No. 922, installed in the Bristol Freighter. The test consisted of 150 hours' flying with the machine loaded to a total weight of 6,200 lbs. —a load which called for over 90 per cent. full power at cruising speed. The installation in this particular machine led to a cylinder and crankcase temperature higher than those which occur under test-bed conditions.

Prior to the 150 hours' test the engine ran the usual three hours official bench test, and did 17 hours' flying in machine-test flights, airworthiness trials, and full-throttle climb, tests of cooling, etc., whereafter it was taken over by Imperial Airways, Ltd. Starting on July 22 the machine was flown in regular service till Aug. 23 when it finished 150 hours' flying. The machine was flown by various pilots, none of them having previous acquaintance with this type of engine. The average fuel consumption over this test was 2,418 gallons per hour and the average r.p.m. 1,580. A forced landing occurred after 144 hours caused by fracture of the oil pipes to the pressure gauge. The oil pipe from the scavenge pump also broke at a brazed joint. Two outer exhaust springs and one stub exhaust pipe had to be replaced during the tests. After the completion of the 150 hours the engine was removed and stripped. Three mechanics stripped it in three hours and rebuilt it in 19 hours. Several piston rings were broken in stripping, and the only other replacements found necessary were three inlet rocker buttons and one complete connecting rod. This latter replacement was of the nature of a precaution, as the white-metal bush was showing signs of small cracks.

The general condition of the engine was excellent throughout.

New Technical Literature.

R. & M. No. 892.—Experiments with a Family of Airscrews, Part III. Analysis of the Family of Airscrews by Means of the Vortex Theory and Measurements of the Total Head. By C. N. H. Lock and H. Bateman. Price 2s. net.

R. & M. No. 904.—Report on Further Investigations of the Effect of Sunlight on Aeroplane Fabric. By G. W. Glendinning and J. E. Ramsbottom. Price 6d. net.

The Institution of Aeronautical Engineers.

The first meeting of the new Session will be held on Friday Oct. 17 at 6.30 p.m. at the Engineers' Club, Coventry Street, W.1.

Commander F. L. M. Boothby, C.B.E., will read a paper on Commercial Airship Design.

Wanted.

Can any reader supply a copy of THE AEROPLANE for Feb. 28, 1917? The Publishing Department needs a copy of this issue to complete a volume. Please send stating price to the Publishing Department, THE AEROPLANE, Cannon House, Bream's Buildings, E.C.4.

Receivership.

AERIAL ENGINEERING CO., LTD.—D. Williams, of 17, Epsom Road, Croydon, ceased to act as Receiver or Manager on May 14, 1924.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 16; Tuesday, 14; Wednesday, 2; Thursday, 15; Friday, 13; Saturday, 16; Sunday, 10.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 43, passengers 191, freight 10 tons.

AIR UNION:

Paris—London: Machines 30, passengers 148, freight 9 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 8, passengers 26.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 2, passengers 2

SPECIAL MACHINES:

SURREY FLYING SERVICES:

Machines 2, passengers 2.

DE HAVILLAND HIRE:

Machines 1, passengers 1.

Total number of trips by British machines: 46, carrying 194 passengers. Foreign machines: 40, carrying 176 passengers.

Comparative Figures:

For week ending Oct. 19:

Machines, 86; Passengers, 370; Crews, 114; Total personnel, 484.

Corresponding week, 1923:

Machines, 84; Passengers, 232; Crews, 131; Total personnel, 363.

Corresponding week, 1922:

Machines, 89; Passengers, 261; Crews, 151; Total personnel, 412.

Corresponding week, 1921:

Machines, 66; Passengers, 226; Crews, 87; Total personnel, 313.

Corresponding week, 1920:

Machines, 90; Passengers, 160; Crews, 104; Total personnel, 264.

Croydon Notes.

The three-engined Handley Page which arrived at Croydon about three weeks ago has not yet been handed over to Imperial Airways. Quite what is the cause of the delay one does not know.

On Wednesday of last week the air lines were disorganised seriously by the bad weather. The only machine to complete a trip was a W.8b which Mr. R. H. MacIntosh took to Paris with seven passengers on board. Lt.-Col. Minchin, on a D.H.34, started from Cologne with six passengers but did not reach Croydon until the following afternoon owing to his being forced down on the route.

The Air Union representatives were in the Croydon Police Court on Saturday morning owing to the fact that a passenger from Paris brought a Pekinese puppy over without declaring it and failed to get through Customs. The case was adjourned to secure the presence of the said passenger.

Mr. Fitch, who used to be on the wireless staff at Croydon, paid a visit to the aerodrome on Saturday. He is now wireless officer at Southampton looking after the communications on the Southampton-Guernsey route.

Mr. Hayden flew to Paris during the week with the Surrey Flying Service's D.H.9 to collect two passengers. This firm is doing quite an amount of inland air-taxi work.

THE GLOBE TROTTERS.

THE ARGENTINE EXPEDITION.

Major Zanni and Signor Beltrame, the Argentine aviators, who are attempting to fly round the World on Fokker-Napier equipment, on reaching Tokyo on Oct. 11 completed the first stage of their long flight in 19 actual flying days, one day less than the time taken by Lieut. Pelletier Doisy.

A telegram has been received by D. Napier and Son from Major Zanni which reads as follows:—

Very delighted state two Napier engines worked admirably until now without slightest indication trouble, wear, and without any necessity change or touch parts.

It will be remembered that on trying to take off at Hanoi, the Fokker C.IV owing to the wheels sinking into the soft ground, turned over, doing irreparable damage. Major Zanni had to wait at Hanoi until a second machine had been sent to him from Tokyo, so that although two engines are mentioned in the above cable, it can be taken for granted that except for the regrettable accident at Hanoi he would have accomplished the whole flight from Amsterdam to Tokyo on one engine.

The Amsterdam-Batavia Flight.

With regard to the forced landing of Mr. Van der Hoop on the Fokker F.VII (360 h.p. Rolls-Royce engine) at Phillipopolis, while attempting to fly from Amsterdam to the Dutch East Indies, an engineer of the K.L.M. who proceeded to

Phillipopolis to report on the accident has cabled the Holland India Committee at the Hague stating that the machine will be repaired within four days of the arrival of spares and new engine.

He states that the flight to Batavia can be resumed by Nov. 15 next.

It has also been reported that as the result of the performance of the Fokker F.VII on the London-Amsterdam service the K.L.M., a further three machines have been ordered use on this service.

Major C. C. Turner's New Novel.

["Dusk and Dawn." By C. C. Turner. Published by Blackett. 7s. 6d. net.]

"Dusk and Dawn," Major Turner's second novel, is, far from nearly such a good yarn as was "The Secret of the Desert." Major Turner seems to have determined to describe more probable happenings in his second novel than he in his first one, with the result that the book is somewhat difficult to get into. Once one gets into it, it is quite interesting, but that is all one can say for it.

Major Turner evidently has the intention of writing a sequel to it. If so one sincerely hopes that he will get his imagination to work on the lines of "The Secret of the Desert." That work was certainly what one would call a thriller, but it was a good thriller and well worked out.

The author told one recently that he was a rotten writer. His first work completely disproves that and so awaits his third with great interest.—G. D.

A Thriller.

["Rasprava." By E. J. Harrison. Published by George Bles, 22, Suffolk Street, Pall Mall, S.W.1. 7s. 6d. net.]

"Rasprava" is described as a story of "Plot and Counterplot in Soviet Russia." It may be remembered that the author was previously responsible for (or guilty of) another Russian thriller called "The Red Camarilla." "Rasprava" is in the same vein.

It would make a wonderful film story and one can almost hear the small boys in the front cheering frantically as vengeance overtakes one of the villain's side or when someone on the hero's side gets on an obvious scent.

One has been told that Mr. Harrison has lived in Russia and that therefore he portrays Russia faithfully. One has read many books about London by people who have lived in London, but which portray events singularly unlike London. But that point of view may be due to one's narrow outlook.

No doubt when the Editor returns from his educational tour he will review this book to the extent of many pages, dragging in his beloved Mongols, Nordics, Hectics and so on. The Editor loves having his flesh made to creep just as he loves making other peoples' flesh creep, especially that of his long-suffering readers.

And so one will leave it at that.—G. D.

PERSONAL NOTICES.

DEATHS.

FRANKLIN.—On Oct. 11, killed in aeroplane accident at Shroton, Iraq, Flg. Off. John Hayward Godfrey Franklin, R.A.F., second son of Mr. and Mrs. R. F. Franklin, late of H.M. Dockyard, Devonport, aged 20.

Mr. Franklin was posted to No. 84 (Bombing) Sqdn. in 1923, from No. 5 F.T.S., Shotwick, and was promoted to Flt. Lt. in April of this year.

HENRY.—On Oct. 15, at the R.A.F. Central Officers' Hospital, Finchley, from meningitis, Flt. Cadet John Edward Henry, 1st Cadet College, Cranwell, younger son of Major and Mrs. H. Henry, of 63, Warrington Crescent, W.9, aged 20 years.

MARRIAGE.

SAMSON-REEVES.—On Oct. 14, at St. George's District Registry Office, Air Commodore Charles Rumney Samson, C.M.G., D.S.O., A.F.C., R.A.F., elder surviving son of the late Charles L. Samson and Mrs. Margaret Alice Samson, to Freda, eldest daughter of Mr. and Mrs. Herbert K. Reeves, of Leatherhead.

BIRTHS.

BROWN.—On Oct. 12, at Gillingham, to Muriel, wife of Flt. G. Stanley Brown, R.A.F.—a son.

COLEMAN.—On Oct. 12, at Rosewood, Brockley Road, Bexley, the wife of Capt. F. H. Coleman, R.A.F.—a son.

CULLEN.—At Lynton House, Minster, Isle of Sheppey, on Oct. 11, the wife of Flt. Lt. Ian Cullen, M.B.E., A.F.C.—a son.

PRESTON.—On Oct. 16, at Evedon, Sleaford, Lincs, to Margaret, wife of Flt. Lt. R. Chevallier Preston, A.F.C.—a daughter.

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Edited by
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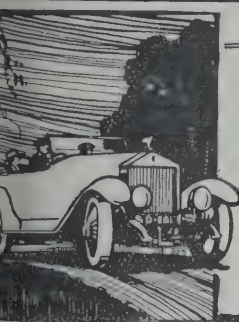
Vol. XXVII. No. 18. SIXPENCE WEEKLY.

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as a Newspaper.]

"I MAY BE GONE FOR A LONG LONG TIME."



HIS LAST OFFICIAL TOUR?—Here is seen the Baron Thomson of Cardington (Secretary of State for Air) accompanied by Air Vice-Marshal Higgins (Air Officer Commanding, Iraq) and His Excellency Sir Henry Dobbs (High Commissioner) alighting from a Vickers Vernon (2 Napiers) at Hinaidi to inspect the R.A.F. units stationed there. Should the Labour Government fall at the Poll next Wednesday the only real regret will be that the nation will lose the services of the Lord Thomson as Air Minister. His extreme keenness on his job has been one of the few bright spots in the Labour Administration.



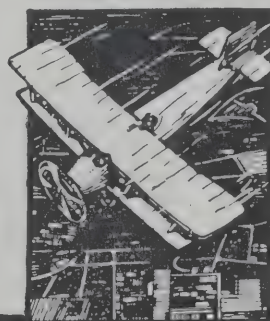
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The AVRO 504, Mark II, is remarkable for its manœuvrability and ease of control,

and its great structural strength combined with these qualities makes it a safe machine in every sense of the word. The wonderful flying qualities of the machine from which it has been developed (AVRO 504K) are known to all to whom flying means anything, and these qualities have been retained and enhanced in its successor, the AVRO 504K, Mark II.

The Standard AVRO 504K, Mark II, carries pilot and one pupil. It can, however, be adapted, as a small commercial machine, to carry pilot and two passengers if required. It should be noted that the majority of the parts of the 504K and 504K, Mark II, are interchangeable.

Engine—Gnome Monosoupape 100 h.p. Rotary Type. The 110 h.p. Le Rhone or 130 h.p. Clerget may be fitted as alternatives.

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Foreign 3 months, 8s. 9d.; 6 months, 17s. 6d.; 12 months, 35s.
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THE DAYTON FLYING MEETING.—II.

By C. G. GREY.

HELL'S HALF ACRE.

Hereafter one drifted over the Civil Aircraft Park for flying aeroplanes. It is known generally as Hell's Half-Acre, presumably because of the hard times suffered by aviators or Gipsy flyers—as joy-riders are called in the States—in their efforts to make a living. It is a matter of fact there was more pluck and ingenuity and was displayed in the classic Half-Acre than in the rest of the field put together. There were roughly a hundred machines there, which had flown in from all parts of the States. One sportsman, named Merrill, had flown 1,000 miles, from Dallas, Texas, on an old Thomas-Morse (of Sopwithian type) to which he had fitted a Curtiss O.X. (90 h.p. eight-cylinder Vee) engine. Another lad, on another Sopwith-like machine with a Le Rhône engine had flown down from Three Rivers in Canada. Several aerial tourists had brought wives with them. The chief interest in the Half-Acre was the cleverness with which old war-junk has been made into new aircraft and neatness of some of the new designs. Mr. Laird, of Chicago (formerly of the Swallow firm), had a couple of very nice biplanes. The Swallow Co. itself had about half a dozen on view. Both these makes are new design and construction and are not made-over junk. The Waco firm (originally of Waco, Tex., and now of St. Louis), made quite a display with four or five neat biplanes in a row. One of them, with a Liberty six-cylinder engine as anybody in England ever seen a Liberty 6?), is a 'bus with a cabin to hold six passengers and gets off the ground with astonishing facility.

BUSINESS IS BUSINESS.

Another interesting firm is the Yackey Aircraft Co., Forest Park, Illinois. Mr. Yackey is a war pilot with a war engineering degree from some Western university. He looks like a stage pirate, he talks like a first-class engineer, and his deeds show him to be a business man of considerable ability. He has built some very pretty three-cylinder biplanes out of Thomas-Morse ships which originally had rotary engines and are now fitted with the Curtiss C.6s (cylinders in line). He told me that he had built up quite a business by supplying materials, engines, etc., for this type of craft to people who wanted to build their own machines, and leaving them to assemble the ships with the aid of blue prints which he supplied with the material. Putting them together by the time on the lid of the box, so to speak. Altogether he has made the makings of about 75 ships in the past year. Besides these he had converted a number of old Bréguet reconnaissance ships (about 30, one believes), into cabin-buses. He said he did not know where they went, but he expected they were used in the liquor trade. Which, judged by the amount of liquor floating round in the States, is very likely.

AN ALL-METAL SHIP.

On the Friday and Saturday, Hell's Half-Acre was dominated by Mr. Bill Stout's corrugated duralumin monoplane from Detroit. It is an eight-passenger craft with a Liberty engine. It is one of the nicest engineering jobs one has seen. If all its millions of rivets stay put after a year of hard flying it will be worthy of a place among the World's Best craft, for it is a very good flying machine. The general design and construction is so impressive that I was almost tempted to accept Mr. Stout's invitation to go back to Detroit in it after the meeting. One gathers that Stout's refusal to do so caused some comment among the dare-devil pilots of the Half-Acre. Not being oneself anything of a dare-devil one sticks to the resolution which one made many months ago to the effect that one will take flying when somebody produces a passenger ship which has a top speed exceeding 130 m.p.h., a cruising speed of 100 m.p.h. and a landing speed of not more than 25 miles an hour, which cannot nose-dive when stalled, and is under full

control at less than its stalling speed. When such an aircraft is produced one hopes to pilot it oneself and not trust oneself to any dare-devil aviator.

And anyhow, having seen the ship at Dayton there seemed no object in going to Detroit, for nobody there makes aeroplanes except Mr. Stout since the big-money interests "quit" in the post-war slump.

PILOTS IN AIR-LINE WORK.

Among the most interesting people whom one met in the Half-Acre were two of the trans-Continental Postal pilots. They are excellent specimens of the best class of professional pilots, very much like the best of our men on Imperial Airways.

Their ideas of a week's work struck me as generous. They regard 600 hours' flying a year as normal, and they say they would fly more but that, being paid by hours in the air, they are not allowed to draw the big money they would earn if they flew as much as they would like.

They like to fly three days and stand off for the next two, with an occasional stand-off for a week. And they say that the more they fly the less they mind bad weather. Also they find night-flying just as easy as day-flying, because their route is so well lighted and so well provided with landing grounds.

All of which bears out one's theory that when air lines are properly organised and have properly arranged landing grounds the pilots will find that the strain on their nerves grows less as their time in the air increases. Flying over a familiar route will become purely a matter of habit, and a man of steady habits and equable temperament ought to be able to fly 25 hours a week till he qualifies for an old-age pension.

LIGHT AEROPLANES.

Among the aircraft at the Wright Field were sundry light aeroplanes. Here America is still a good way behind us. The Driggs-Johnson and the Mummert monoplanes are neat, but in no way out of the ordinary. The rest are quite primitive. None of them compare with our little de Havillands, or with the Parnalls or A.N.E.C.s.

Purely as an expression of personal opinion one puts on record the statement that light aeroplanes, as at present understood, have no commercial future. But from them, if they are used intelligently, for experimental tests, we may in time develop really useful passenger-carrying aircraft with engines giving from 50 h.p. to 100 h.p. If about 30 h.p. will carry two people in a light aeroplane it ought to be possible to produce a useful taxi to carry a pilot and four passengers with 100 h.p.—provided that somebody will give us a reliable and light engine of that power.

ARMY RACING.

The racing on the second day of the meeting was of little interest except for the race for Martin bombers. Seven started, in pairs at intervals of a minute with an odd one alone at the end of the string. All flew well and all finished, and there was little difference in their speeds.

The first important event on the Saturday was the race for the John L. Mitchell Memorial Trophy. The late John Mitchell, who was killed in the War, was a brother of General William Mitchell, the man who has really made American Army Aviation. The race was confined to pursuit ships. There were ten starters, all on P.W.8 Curtisses, with the D.12 engine.

The winner's average speed was 175 m.p.h. and the speed of the slowest machine was about 166. The distance was about 50 miles, and there were no break-downs. It was a fine display of good level piloting. One wished that some of our Trade and Technical people could have been there to see what sort of performance *can* be put up by standard pursuit ships. Our high-speed fighters would have looked rather poorly with their 135 m.p.h.

Which is not to say that our Trade designers are to blame, for one knows that we have designers who if given a free hand could do at least as well and perhaps better. But the

cold fact remains that the R.A.F. pilots have not got machines of such quality and are not likely to have them till some change takes place in the outlook of the Air Ministry.

THE PULITZER TRAGEDY.

The last event was the tragic Pulitzer Race. Four ships actually started. The Verville went first, piloted by Lieut. Mills. Then the Curtiss, piloted by Lt. Burt Skeel. Then the other Curtiss, piloted by Lt. Brookley. And last a standard P.W.8a. All got away well from the side of the field opposite the timing box, as the wind was blowing from the enclosures down the field towards the sheds. They flew high so as to turn down wind and dive over the starting line, to get all the initial speed possible.

One happened to be looking across the field from the starting place towards the starting pylon so that the sun, which was veiled by a cloud, was in one's eyes. The Verville crossed the line and was heading towards us, when one saw what seemed to be a shell-burst, apparently a bomb fired to indicate that the race had begun. There was just one burst of smoke and falling pieces on each side of it.

The first thing that struck one was that it was a silly idea to send up a bomb when the other two machines were diving for the line. Then someone alongside said quietly:—"Skeel's gone," and one realised that his machine had burst in the air. As we walked back to the sheds an Army mechanic, blazing with indignation, said:—"There. Those God-damned pencil-pushers and grafters go on spending millions and these fellows have to go out and fly ships that ought to have been on the junk-heap two years ago." That may be taken as the view of the flying personnel of the U.S. Army Air Service, for they, like our R.A.F. pilots, know the evil that is done to them by people who sit in offices. And there is a rumour among the men who fly that Washington proposes to spend 5,000,000 dollars on building a new and much-enlarged McCook Field just outside Dayton to the glorification of Dayton, when the Army wants new machines even worse than the R.A.F. wants them.

The second Curtiss came past at obviously less than its full engine-power. That seemed natural seeing that the pilot must have seen Skeel's machine burst right in front of him. In the event, the Verville won at 216 m.p.h. So if we had sent our best machine over we might have won.

Afterwards Martin Bombers, M.Bs., and P.W.8s. gave a fine display. A city of frame-and-fabric sky-scrappers built to resemble New York was bombed and set on fire in the best manner of a Hendon Pageant. A smoke-screen was dropped. And everybody went home feeling sad about poor Skeel, who was immensely popular.

THE CAUSE OF THE ACCIDENT.

As we drove away from the field the men of the U.S. Army were still searching for Skeel's body. Bits of the ship had been found. And among other things one of the big cylinder blocks of the engine was missing, showing that the engine had been torn to pieces in the air.

Now broken crankshafts or broken connecting rods do not remove cylinder blocks, so the only possible assumption is that the airscrew, which was made of wood, broke owing to the excessive speed of revolution during the dive, and the remaining pieces whirling like a flail simply yanked the engine to pieces.

It was said later that both the Verville and the other

Curtiss, when they came in, showed signs of disintegration. Dope and fabric had stripped in certain places. Joints which had been covered by fabric to give better streamlines were beginning to open out. And the wings themselves were coming loose internally. In fact some people said that neither machine could have gone another lap of the course.

Whether that is strictly true or not, it is fairly evident that no high-speed racing ship can be flown for three years in succession unless it is entirely rebuilt. And it is generally accepted that this event puts an end to racing by the Service in the United States, except for races between standard ships of various types.

After it was all over one met Mr. Orville Wright, who gested in his gentle impractical way that such accidents should be prevented in future by forbidding pilots from diving their machines. It did not seem to strike him that it would be no use in time of war to tell a pilot that he must remember not to dive in an air fight. Nor did it seem to strike him that the simpler remedy is to make aeroplanes that cannot break when dived to their limit of speed.

MANAGEMENT AND MISMANAGEMENT.

The general management of the meeting was good. Howard Wehrle, the official Starter, and now the new secretary of the National Aircraft Association, is just the type of man we need in England to run air races, and so is Mr. Russell Shaw, the chief executive official, who was responsible for the smooth running of the events. Neither of them belongs to Dayton, so whatever was good about the meeting can go to the credit of that self-satisfied town.

The arrangements for the crowd were as bad as they could be. The starting pylon was about half a mile out from the field from the timing box. The timing box was a hundred yards or so from a road. And fifty yards or thereabouts on the other side of the road was the front row of the cattle-pen which were dignified by the name of boxes. Then another fifty yards behind them was the front of the public enclosure. Consequently the crowd could never get a "close-up" of the machines.

There were no sanitary arrangements of any kind, so as one could see. And the only refreshments obtainable to those who were not, like our party, privileged to be given the freedom of the Officers' Mess, were "hot dogs," "Hamburger sandwiches" and execrable coffee and nasty sweet fizzy drinks sold by booths such as exist in England at village fairs. Apparently the civic soul of Dayton has not grown with its municipal girth.

That anyone who was not dragged there for business reasons or who was not allowed the run of the aircraft parks should have gone to the Wright Field more than once seems incredible. Perhaps that is why a public enclosure designed to hold 100,000 or more never seemed to contain more than 15,000 or 20,000 people. At any rate the proud citizens of Dayton will now have the pleasure of paying for having bitten off more than they could chew.

One hopes that next year the meeting will be held at some wideawake and progressive city like Cleveland, or Buffalo, or Kansas. One would very much like to see a team of truly representative British aeroplanes competing for the Pulitzer Trophy at a real live air meeting such as could be organised at a real live city by real live N.A.A. officials like those who have just been elected.—C. G. G.

The Editor's Return.

The Editor was due to leave New York on Wednesday Oct. 29 in s.s. *Aquitania*, and should arrive here on Nov. 5, a date made famous by another big noise.

The Return of the Shenandoah.

The U.S. rigid airship Shenandoah arrived at Lakehurst on Oct. 26 after having accomplished a double crossing of the United States, a distance of 9,000 miles in 18 days.

Five "landings" were made during the flight for attachment to mooring masts and in one case minor repairs were made while attached to the mast at San Diego, Cal. The flight was made under all conditions of weather, and particularly over the Rocky Mountains heavy storms were met which tested the airship to the utmost, and on four of the six stages the ship had to contend with head winds. In spite of this the average speed for the whole journey worked out at between 38 and 40 m.p.h.

International Aerial Navigation.

The International Commission for Aerial Navigation under the Chairmanship of M. P. E. Flandin, concluded its annual sitting in Paris on Oct. 14. The sittings were attended by delegates representing 18 nations.

Among the subjects discussed by the Commission have been the following:—

The exchange between the contracting parties of all legislative documents concerning aerial navigation; the

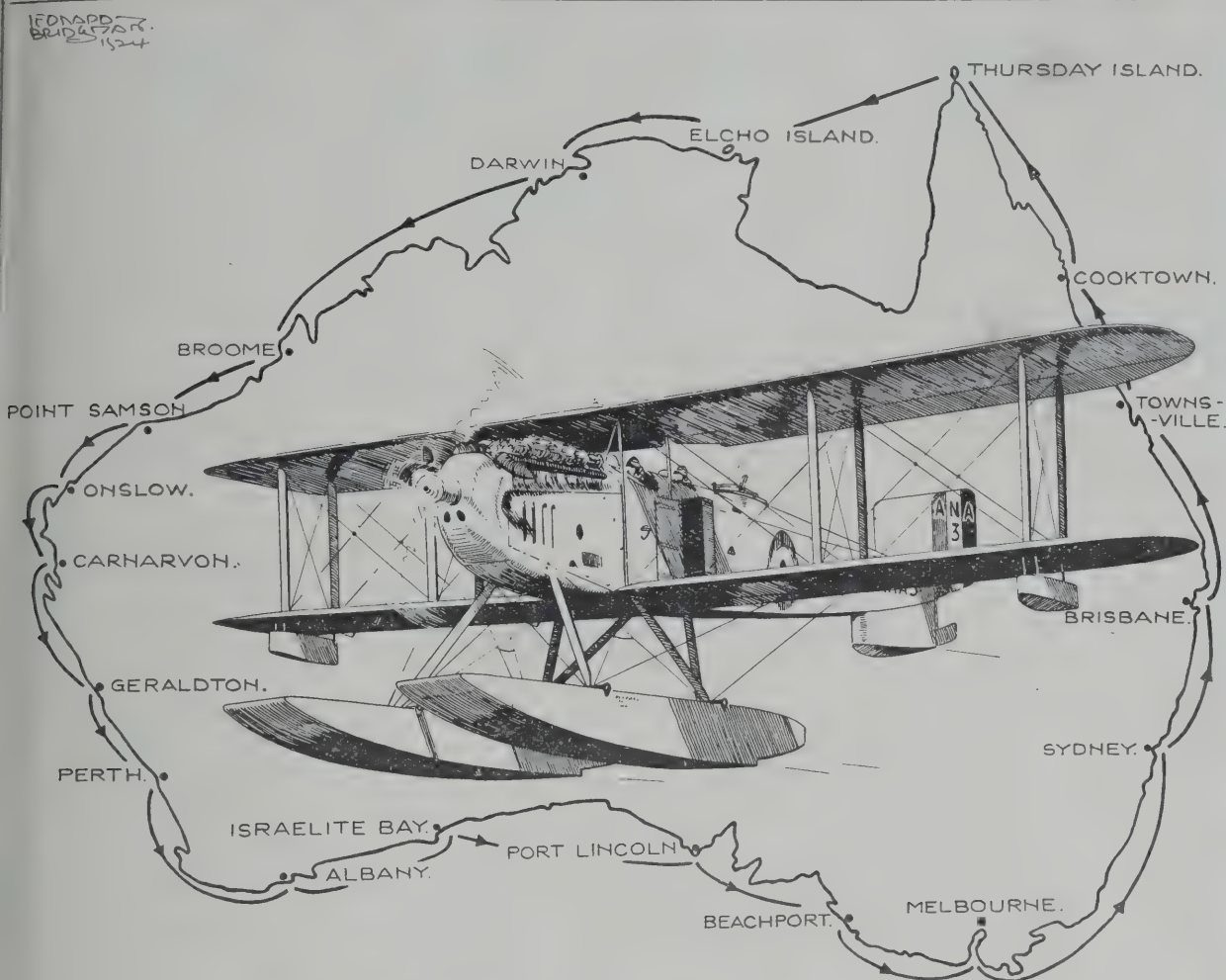
drawing up of minimum conditions governing the issue of airworthiness certificates; the nature of the medical examination for aircraft pilots; the publication of charts for aerial navigation; the transmission of meteorological information; the unification of terms and signs employed in technical aeronautics; the organisation of first-aid medical supply cabinets on aircraft; the lighting of aerodromes at night; the adoption of an international standard atmosphere for purposes of calculation; rules for air travel; merchandise which it is forbidden to transport by air; the institution of diplomas for navigators and meteorologists; regulations concerning the use of wireless on aircraft.

The next meeting of the International Commission will take place in London in April next.

New Seaplane Records.

On Oct. 25 Lieut. R. A. Ofstie, U.S.N., flying a Curtiss C.R.3 seaplane (500 h.p. Curtiss engine) covered 100 kms. in 21 mins. 4 secs., and 200 kms. in 41 mins. 50 secs. over the measured course at Bay Shore, Baltimore. His average speeds for these two distances worked out at 176.82 and 178.5 m.p.h.

The previous speeds for these distances were 130.5 and 170.88 m.p.h. respectively, put up by Capt. Biard on a Supermarine Sea Lion (450 h.p. Napier engine) at Naples in 1910, and Lieut. D. Rittenhouse, U.S.N., on a Curtiss C.R.3 (450 h.p. Curtiss engine) at Cowes in 1923.



ROUND AUSTRALIA

8,568 miles in 90 hours

ON A

THREE YEARS' OLD FAIREY SEAPLANE

360 h.p. Rolls-Royce Engine.

Flight-Lieut. IVOR EWING McINTYRE, O.B.E., A.F.C. (R.A.A.F.), pilot of the seaplane, said:—

"The performance of the machine was absolutely excellent throughout. I have had a good deal of experience of seaplanes but this has far surpassed anything that I had expected. You know the old bogies about sun-warping of wings, yet, although the Fairey encountered heavy rains and was then very severely tested by going suddenly into the tropics, the wood spars and general rigging stood up to it perfectly. During the whole flight we never touched a wire on the rigging. Fabric, controls and everything else connected with the machine were perfect."

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Designers and Constructors of Seaplanes, Aeroplanes, Flying Boats and Amphibians.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE ROYAL AIR FORCE.

The London Gazette.

GENERAL DUTIES BRANCH.—The following Plt. Offs. are promoted to the rank of Flg. Off., with seniority of the dates indicated in brackets:—V. Harris, July 14 (Jan. 14); R. H. S. Spaight, Oct. 21 (Oct. 21, 1923). The antedate of seniority of Flg. Off. Spaight will not count for purposes of pay as a Flg. Off. nor for increments of pay. Plt. Off. R. H. Carter is promoted to the rank of Flg. Off. (Sept. 20).

The following Plt. Offs. on probation are confirmed in rank:—T. A. Hale-Munro (Aug. 28); J. M. Cohn, F. H. S. David, C. Feather, A. N. Francombe, V. G. H. Gee, M. W. Goldie, H. F. Luxmoore, A. L. Macmillan, A. W. B. McDonald, A. D. McDowall, A. W. G. Martin, W. V. R. Nicholl, H. M. G. Parker, G. B. M. Rhind, C. S. Staniland, N. A. West (Sept. 15); R. R. Bennett (Sept. 21).

The following Flg. Offs. are transferred to the Res. (Oct. 24):—Class A.—O. T. Hazell and G. R. B. Smyth. Class B.—R. Hall. Class C.—V. F. R. Hill and E. M. Ling. Plt. Off. G. L. Worthington resigns his perm. comm. (Oct. 22).

STORES BRANCH.—Flg. Off. J. C. Brice is granted a perm. comm. for accountant duties in the rank stated (Oct. 22); Flg. Off. C. G. Bull resigns his S.S. comm. (Oct. 22).

MEDICAL BRANCH.—A. Harvey, M.B., is granted a S.S. comm. as a Flg. Off. with effect from, and with seniority of, Oct. 7; H. W. D. Mackenzie, M.B., is granted a S.S. comm. as a Flg. Off. with effect from, and seniority of, Oct. 1, and is seconded for duty at Royal Infirmary, Edinburgh.

RESERVE OF AIR FORCE OFFICERS.—The following Plt. Offs. are promoted to the rank of Flg. Off. (Oct. 21):—R. N. Riddell, J. E. Whitehead, G. E. Muir, E. J. Wing, D. G. R. Lord, V. N. Dickinson, E. A. Burbidge, D. C. Evemy, W. Mullen, G. S. Fenwick, A. M. Verity, R. C. Knowles, N. J. Nock, W. Harnston, W. R. Bannister, K. Onyett, W. A. Hammerton, A. Cairnie, F. J. Letzer, R. R. H. Taylor, W. A. Foot, J. F. Greenwood, G. A. Milbank, A. J. Black, J. E. Taylor, A. Wren, W. A. Warwick, H. G. Eggar, P. G. Addie, H. V. Bullock, I. E. Hunt, F. Neale, R. R. Spencer, M.M., H. C. Biard, L. R. Robertson, H. Preston, M. B. Lacey, H. J. L. Jones, W. R. Parkhouse, D. M. David, C. T. S. Capel, D. L. Townsend, J. Craig, C. Bunch, T. E. W. Browne, H. B. Hampson, W. F. Jagges, L. E. Headley, F. A. Ledgard, G. Burton, I. R. Taylor, R. W. Barton, G. Richardson, D. W. S. Ireland, R. T. Bark, G. G. Williams, J. C. Raine, M.B.E., I. E. Falla, D. C. Bain, J. R. Cox, G. T. Whitcombe, P. A. Cox, R. J. Hibberd, W. George, A. J. Brewin, C. M. Willy, J. F. Turpie, R. J. Weaver, R. W. Jackson, D. A. Watson, R. Reynolds, C. K. Carter, K. L. Graham, G. W. Smart, G. T. E. B. Dorman, C. E. F. Searle, T. W. Ashton, C. W. Daggett, W. M. Hiron, A. E. Betts, F. Allen, T. A. Jackson, W. Anderson, J. C. Edwards, E. A. Kemp, H. W. Frith, E. C. Brown, T. A. Priestley, C. W. Calder, W. A. Rollason, G. G. Matthews, V. Foster, E. D. Trask, A. Y. Paton, D.C.M., A. Higham, H. S. Basford, W. H. Herd, R. A. Seaton, T. W. Campbell.

Flg. Off. W. Armstrong, A.F.C., is confirmed in rank (Oct. 15); Flt. Lt. H. B. Pett, M.C., is transferred from Class A to Class C (Oct. 21).

Appointments.

Week ending Oct. 28.

GENERAL DUTIES BRANCH.—Wing Commander T. O'B. Hubbard, M.C., A.F.C., to No. 1 Group H.Q., Kidbrooke, for Technical Staff duties on transfer to Home Establishment, 27/10.

Squadron Leaders R. L. G. Marix, D.S.O., to R.A.F. Depot, 13/10. E. O. Grenfell, M.C., D.F.C., A.F.C., to No. 7 Sqdn., Bircham Newton, 20/10. C. H. Hayward, to H.Q., Coastal Area, 27/10. G. S. Trewin, A.F.C., to R.A.F. Depot, 21/10. A. S. C. S. MacLaren, O.B.E., M.C., D.F.C., A.F.C., to Marine Aircraft Experimental Establishment, Felixstowe, 23/10.

Flight Lieutenants W. A. Coryton, M.V.O., D.F.C., to H.Q.I.A., on

transfer to Home Estab., 21/10. A. McR. Moffatt, to R.A.F. Depot, 1/11. P. Huskinson, M.C., to H.Q.C.A., 20/10. W. Elliot, D.J. to Air Ministry, 13/10. L. J. St. G. Bayly, M.C., to Electrical Wireless School, Flowerdown, 24/10. W. B. Everton, to No. 1 Sqdn. of T.T. (Boys), Halton, 30/10. J. S. Holloway, to Station F. Bircham Newton, 10/9. W. A. Skeate, to No. 28 Sqdn., India, 1/11. W. M. Fry, M.C., to No. 7 Sqdn., Bircham Newton. G. H. Harrison, D.F.C., to R.A.F. Base, Calshot, 3/11.

Flying Officers R. Jones, to No. 5 Sqdn., India, 15/10. F. H. Twelvtree, to H.Q., Mediterranean, Malta, 8/10. S. T. Tipper, R.A.F. Base, Calshot, 29/10. L. J. Booth, to R.A.F. Depot, 27/10. C. E. Stuart, to No. 13 Sqdn., Andover, on transfer to Home Estab., 2/11. O. C. Noel, to R.A.F. Depot, 27/10. A. R. M. Brain, to No. 24 Sqdn., Kenley, 31/10. R. Mundy-Cox, to No. 58 Sqdn., Woburn, 31/10. H. E. Kirk, D.C.M., E. A. Scales, to R.A.F. Depot, 4/11. F. O. Burnley, to Electrical and Wireless School, Flowerdown, 27/10. J. W. Bell, D.S.M., and W. N. Lancaster, to School of (Men), Manston, 24/10. J. de la P. B. Preston, to No. 5 Arm. Co., Iraq, 7/7. A. E. Connolly, to No. 45 Sqdn., Iraq, instead of No. 84 Sqdn. as previously notified, 5/9. C. A. Hoy, M.C., to R.A.F. Depot, 1/11. W. E. Cowan, to Electrical and Wireless School, Flowerdown, 27/10. A. Haines, to No. 9 Sqdn., Manston, 9/10.

Pilot Officers P. E. Nicholl, to School of Balloon Training, 1/11. Hill, 13/10. H. C. E. C. Dalrymple, to No. 24 Sqdn., Kenley, 27/10. E. L. Batson-James, to No. 56 Sqdn., Biggin Hill, 27/10. D. J. McMillan, to No. 3 Sqdn., Upavon, 27/10. K. Maconochie, to No. 3 Sqdn., Hawkinge, 27/10.

MEDICAL BRANCH.—Flight Lieutenants (Medical) W. G. Weston, M. to I.A.A.D., Henlow, 10/10. (Hon. Sq. Ldr.) F. W. Squair, M. T.D., and G. M. Mellor, to R.A.F. Depot, 1/11. P. C. Livingston, D.P.H., D.O.M., and S.B.A., to R.A.F. Depot, 15/11.

Flying Officers (Medical) H. W. Corner, M.B., to R.A.F. Central Hospital, Finchley, 15/11. D. Magrath, M.B., to R.A.F. Depot, 23/10. C. J. MacQuillan, M.B., B.A., to Aeroplane and Arm. Exper. Estab., Martlesham Heath, 13/10. F. P. Scholfield, M.B., to No. 5 F.T. Sealand, 13/10.

STORES BRANCH.—Flight Lieutenant (Stores) H. E. T. Crocker, to Aeroplane and Arm. Exper. Estab., Martlesham Heath, 23/10. R. Young, to Station H.Q., Kenley, 29/10. Flying Officer (Stores) C. Tidy, to H.Q., Cranwell, 30/10. Flying Officer (Accountant) R. W. Glenn, to Central Flying School, Upavon, 10/11.

CHAPLAINS' BRANCH.—The Rev. J. Black, O.B.E., M.A., to R.A.F. Depot on appointment to an Hon. Comm. without pay and allowances, 20/9. The Rev. W. T. Rees, to H.Q. Iraq, 30/9.

The R.A.F. Memorial Fund.

A meeting of the Executive Committee was held Oct. 1, and the following Members of the Committee were present: Lord Hugh Cecil (Chairman), Lady Leighton, Mrs. Barrington-Kennett, Mrs. L. M. K. Pratt-Barlow, Sir Charles McLeod, Air Vice-Marshal Sir Geoffrey Salmond, Air Vice-Marshal Sir Philip Game, Air Commodore C. A. H. Longcroft, Lieut.-Commander H. E. Perrin, and Mr. W. S. Field. A very satisfactory list of donations and subscriptions was submitted by Sir Charles McLeod, Hon. Treasurer.

A scheme was approved, under which grants of money were sanctioned for the use of Air Officers Commanding R.A.F. Commands abroad.

The Committee were informed of the death, on Sept. 4, Mrs. M. E. Salting, by whose kindness the "Salting Benefaction" was instituted for the grant of educational allowances for the sons and daughters of officers of the R.A.F. past and present.

The resignation of Air Vice-Marshal Sir Vyell Vyvyan, K.C.B., was accepted, with very much regret, and in his place the Committee have been able to secure the services of his successor, Air Vice-Marshal F. I. Scarlett, C.B.

The Committee authorised the purchase of a wreath, to be laid at the foot of the R.A.F. War Memorial on the Victoria Embankment on Armistice Day.

"A" Flight, No. 27 (Bombing Squadron, R.A.F., Risalpur, Central India) row, left to right:—Flt. Sjt. Springate, Flt. Sjt. N. C. Hayter-Hames, Flt. Sjt. W. A. Chase, Flt. Lt. S. B. Harris, D.F.C., A.F.C., Flt. Off. E. E. F. Colam, Sjt. Cowton, M.S.M.



ARMSTRONG SIDDELEY

Aircraft Engines.

Stages in Progress.

THERE is no more rigid or thorough test for an engine than the Type Tests carried out under supervision of the Aeronautical Inspection Department of the British Air Ministry. Three times has the Armstrong Siddeley

"JAGUAR" Air Cooled Radial Engine

been submitted to this test and come out triumphant:—

June '22, Series II "Jaguar," 325 B.H.P., 50 hrs.

March '24, „ III "Jaguar," 360 B.H.P., 50 hrs.

August '24, „ IV "Jaguar," 385 B.H.P., 100 hrs.

It will be noted that in addition to the high speed and maximum power tests the duration of the latest test was 100 hours. The "Jaguar" Air Cooled Radial is

**the first aircraft engine
to fulfil this test.**

Other Achievements.

Farthest North. Oxford University Expedition North Eastland. Avro Aeroplane fitted with "LYNX" Engine beat Farthest North flying record--80.15.

London to Africa. Mr. Alan J. Cobham flew from London to Tangier and back in a D.H.50 fitted with an Armstrong Siddeley "Puma" Engine 3,000 miles in 28 hours actual flying time.

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The Grain Dinner.

The sixth Annual Reunion Dinner for ex-officers of Grain Air Station was held at the Mars Restaurant on the evening of Saturday, Oct. 25. The chair was taken by Wing Cdr. T. R. Cave-Brown-Cave, and nearly forty Grainites and friends were present, among them Wing Cdr. H. R. Busteed, Wing Cdr. H. M. Cave-Brown-Cave, Sq. Ldr. E. K. Wells, Major R. A. Chalmers, Mr. Ronald Kemp, and many other Grain notabilities.

The health of The King having been drunk in due form, the Chairman referred to the fact that the Grain dinner after six years was still going strong, despite the fact that Grain existed no longer and that its work was now carried on at Felixstowe so far as testing was concerned. There were a number of old Grainites at Felixstowe and this raised the question as to whether for the purposes of this dinner Felixstowe was to be regarded as the equivalent of Grain, or whether the dinner should remain a Grain function for the benefit of those only who had inhabited that delectable isle alone.

With very little discussion it was decided that Grain was sufficient for itself, and that residence at Felixstowe was not to be regarded as an equivalent qualification.

For the rest the proceedings were entirely informal and of little interest to those who know not Grain, but eminently satisfactory to those who did. And as that is the essence of a satisfactory reunion dinner it may be left at that.

The Yarmouth Dinner.

On Saturday, Oct. 25, there was held at Oddenino's Restaurant the 5th Annual Reunion Dinner of officers who served at Great Yarmouth Air Station during the war. In the absence of the President, Air Commodore C. R. Samson, C.M.G., D.S.O., D.F.C., the chair was taken by Lieut.-Col. V. Nicholl, D.S.O., D.S.C. The first portion of the evening went the way of all dinners, a plentiful array of fancifully-named dishes being consumed to slight liquid accompaniment. After the toast to the King everyone settled down to spend the remainder of the evening according to their own desires.

Capt. Featherstone and Capt. Hartley proposed votes of thanks to the Chairman and the Secretary, Capt. G. F. H. Bloom, respectively, both of whom replied modestly.

In reply to the toast to The Service proposed by Capt.

Hodson, Wing Cdr. R. Leckie, D.S.O., D.S.C., D.F.C., showed that in spite of wrestling with the office work at Coastal he still possesses that remarkable enthusiasm for work, so famous at Yarmouth, and his obvious delight in recounting how on the outbreak of hostilities he would be immediately posted to active duty overseas, really made one's flesh creep.

Flt. Lt. B. C. H. Cross, D.F.C., endeavoured and incidentally succeeded in giving a very modest discourse on the seaplane flying in spite of much exceedingly humorous interruption. His reference to 227 Squadron of which he was the first C.O. and the 34 Short Seaplanes that found the bed, doubtless gave the late F.2a, Schneider and D.H. courage to air their witticisms.

"Doc." Holman and Capt. Featherstone then obliged two very personal songs concerning the personnel of the mouth, accompanied on the piano by Mr. Archer, a Yarmouth rating who had very sportingly turned up to the piano.

In all 27 officers were present at the very cheery gathering but there should have been more. To Capt. Bloom, on whose wise "Blossom," everyone's thanks are due for keeping the memory of Yarmouth and its sub-stations alive. The reunion dinner is one of those very few institutions for which the war can be praised, and to those people who were present for other reasons than the exigencies of the Service and the fact that they may now be domiciled hopelessly far from reach of London one expresses one's sincere condolences. L. B.

The Scottish Re-Union Club.

The second annual dinner of the R.A.F. (Scottish) Re-Union Club will take place at the Grand Hotel, Charing Cross, Glasgow, on Nov. 14.

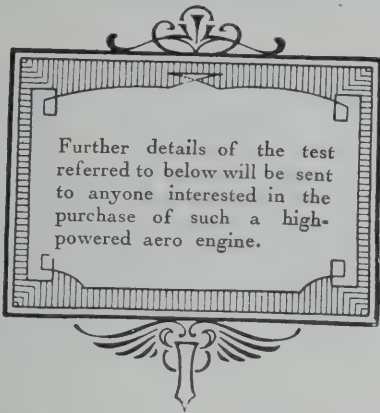
Ex-officers of the Flying Services who have not yet applied for tickets should communicate with John Talbot, 163, Nithsdale Road, Pollockshields, Glasgow.

A Long Training Flight.

Twenty aeroplanes of the 21st Aviation Regiment (night bombing) of the French Army stationed at Nancy are to proceed on a training flight of 2,200 miles round France. The route to be followed will be via Lyon, Istres (Marseille), Pau, Bordeaux, Tours, Le Bourget (Paris), Dijon, Strasbourg, Mayence, Mourmelon and back to Nancy.



KURDISTAN.—Tel Afar looking west from the citadel. This photograph was taken in May, 1923, and is typical of the country covered during the Kurdistan operations at that period.



Further details of the test referred to below will be sent to anyone interested in the purchase of such a high-powered aero engine.

NAPIER Aero Engines

Still lead

Another Stage passed in aero engine reliability

THERE is no more searching test for an aero engine than the Type Tests carried out under the official observation of the British Air Ministry. The 450 h.p. Napier aero engine has already passed successfully ten fifty-hour British Government Type tests—534 hours in all. NOW—the latest 450 h.p. Napier aero engine has completed a Type test of

104 HOURS under
official supervision of the
British Air Ministry

Never before has an aero engine of such high power passed successfully such a long and strenuous test.

During the whole time—ten non-stop periods, each of ten hours, followed by a period of slow running, one hour at full throttle developing 500 h.p., and one hour at 2310 revolutions p.m., developing 350 h.p.—the engine was under the rigid supervision of inspectors of the Aircraft Inspection Department.

No part of the engine was changed or adjusted throughout the test.

This further emphasises the wonderful reliability, flexibility and high performance of the Napier aero engine.

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The Royal Aeronautical Society in Scotland.

At the Annual General Meeting of the Scottish Branch of the Royal Aeronautical Society held in the Technical College at Glasgow on Oct. 20, Lord Invernairn, who presided, in a speech moving the adoption of the Annual Report and accounts, commented upon the suggestion made by a certain number of pacifists at Geneva that the British Navy should be called upon to police the world. He thought that a ridiculous and impossible idea, but he thought that if Geneva got a right perspective in regard to peace, they might call upon Britain, America and France to police the world by aircraft. If peace were to have to depend on such measures it was in the air alone that they could obtain the necessary power.

The Scottish branch of the Society was situated in a great engineering centre which would he hoped become one of the greatest air centres of the world. They were pleased with the progress that they had already made and they were greatly encouraged by the help received from the University and the Royal Technical College. Particularly they were pleased with Mr. Shackleton's success in bringing the Air Ministry prize at the recent light aeroplane competitions to Glasgow, and he hoped that this success would lead to orders for aeroplanes coming to them.

Following the adoption of the report, Air Commodore F. C. Halahan gave a lecture on "Some Interesting Development Problems."

The Annual Report indicates that the Scottish branch of the Society has been successful in maintaining its activities during the past year. A full programme of interesting meetings was carried through, and marked success has been attained in interesting the engineering students of Glasgow University and Technical College in aeronautics.

The Hon. Secretary (Mr. J. Buyers Black) had addressed all the engineering classes at both these institutions. During the last four years the names and addresses of over 1,500 engineering students interested in aeronautics had been collected, and the Society should therefore be able to render great assistance in the recruiting of the Home Defence Air Force.

The Society believe that in no other centre does there exist ready to hand material of so fine a quality for the nucleus of a School of Aeronautic Research and it has given its support to the movement for the foundation of such a school.

During the year ending May 31 the income of the Society was £176 13s. (£161 16s. from subscriptions), and the outlay £259 11s. 7d. With the balance of the initial Establishment Fund the balance in hand was £232 11s. 4d. Thus the Society should be able to meet its liabilities for the current year, but it might be necessary then once again to appeal to those who had so generously contributed to the Establishment Fund. It was therefore the duty of the members to attempt to secure fresh members in considerable numbers, in order that the income from subscriptions should suffice to meet the Society's expenses.

Aviation in Manchuria.

For a considerable time it has been very difficult to obtain any information concerning aviation in China but by good luck one has been able to learn a little of what is being done in Manchuria under the Tuchun (or Marshal) Chang Tso-lin, who is for practical purposes Dictator of Manchuria and apparently has ambitions to capture Peking and become Dictator of China.

The British Aircraft Industry has, it seems, practically ceased to do business in Manchuria. The reason apparently is that in the first place English business methods are too straight rather than too strict.

Also we had the misfortune to get hold of Chinese aviation business very soon after the Armistice and consequently had the job of teaching the Chinese from the beginning. That is always a bad thing to do because all the accidents and the general mess and muddle inseparable from teaching aviation to an entirely ignorant nation are blamed on the people and the machines of the nation which does the initial teaching. Then another nation comes along with machines and methods which have been improved by experience and is able to base something like a properly organised system on the spade work which has already been done by somebody else.

In most countries the French or Italians have done this initial work and have earned the reputation of killing pupils through bad instruction and bad machines. And in those nations the English have been able to come along with better machines and better system and are now getting the business. In China, almost alone among the nations, the process has apparently been reversed. The result is that the French are now very well in with the Manchurian authorities and British aviation is somewhat at a discount.

French prestige has naturally been very much increased by the arrival of M. Pelletier Doisy and very good work has



MANCHURIAN AVIATION :—(Top picture)—Mukden, 2.6.24, Capt. Doisy gliding in to land. (Centre picture)—Capt. Doisy's machine at Mukden. (Bottom picture)—From left to right : Gen. Yang, Chief of Staff, Marshal Chang Tso-lin, Gen. H. L. Chang, his elder son (age 26, commanding divisions and the Aeronautical Department), Col. Yao, Chief of Aeronautical Staff.

also been done for France by M. Poulet the excellent French pilot who endeavoured to fly to Australia. Besides French machines the Manchurians have acquired an Austrian Lothar flying boat and a German Albatros, presumably of war stock and very probably acquired from the Russian Royal Air Force.

The Officer in Charge of Manchurian aviation is Gen. H. L. Chang, eldest son of the Tuchun Chang Tso-lin. He is age 26 and besides commanding the Aeronautical Department of his father's army he also commands two divisions of troops. His Chief of Staff is Colonel Yao.

The instructors in this force are one Englishman, two Frenchmen and eight Russians. The last-named are apparently relics of the Russian Royalist or White Army.

With these instructors and a collection of quite respectable machines of various sorts the Manchurians could possess a good air force. Although the Northern Chinaman is intellectually on a very much higher level than is the Southern Chinaman, which is in agreement with the effect of latitude on all races, he is still a Chinaman and suffers from the limitations of his race.

Being of such an antique civilisation the Chinaman is always inclined to regard Europeans as Western Barbarians. Consequently when he has learned a little of anything we call Western Civilisation he imagines that he knows more about it than do his instructors. Probably this is just so, well, because if their own intellects were as capable as theirs themselves imagine them to be, there would be little chance for the Western Races against the sheer numbers of the East.

Anyhow the result is that although some few Chinese know how to fly after a fashion they have practically no mechanical knowledge about their machines or engines and they know still less about bombing or machine-gunning. The result is that judged by Western standards the Manchurian Air Force is of very little value as a war unit. Nevertheless having aeroplanes and having some idea how to use them the Manchurians have to that extent an advantage over the Southern Tuchun Lu Yung-Hsiang with whom they are at war after the Chinese fashion.

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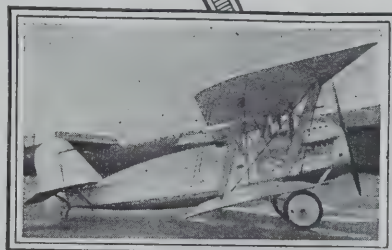


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SECRECY AND STUPIDITY.

This paper has on more than one occasion ridiculed the policy of the Air Ministry in attempting to keep secret from the British public reasonably reliable information as to the technical characteristics and the performance of new British Service aircraft. It will be remembered that in general as soon as a new type of machine has passed through its preliminary tests the Ministry grants permission for the publication of exterior views but does not permit any technical details, performance data, or description of service equipment fitted to the machine to appear.

WHY SECRECY IS FUTILE.

Now in the first place from a couple of good photographs and a knowledge of the dimensions of any one component of the complete machine—such as is always present at least in the engine—it is quite a simple, though, perhaps, a somewhat laborious, task, to produce a reasonably accurate set of general arrangement drawings and therefore to discover all the important dimensions of the machine. From the information so obtained any competent aeronautical engineer could produce an estimate of the machine's probable performance, making certain assumptions as to the loaded weight. He will also be able to estimate with fair certainty what disposable load the machine could safely carry.

Secondly, although it is relatively easy for the powers that be to prevent the press from publishing any information as to the actual equipment and performance of the machines, the absence of publication cannot prevent the leakage of information to those who desire it, and does not prevent such leakage in many cases even to those who do not go out of their way to seek it.

WHEN SECRECY IS HARMFUL.

There is a certain amount of equipment that is not only supplied by the Air Ministry but is also fitted to the machine by Service mechanics. The unfortunate designer is instructed to provide so many cubic feet of space for such gadgets which are held to be of so confidential a nature that he must never be allowed to see them in the flesh. Of course, he always, or nearly always, does see them, and usually finds that had he been given reasonable full information to start with he could have installed them much more compactly, conveniently and with less addition to the loaded weight of the machine.

What useful purpose is served by this curious form of reticence? Everyone who is sufficiently interested in the matter can discover most of the essential details concerning the newest aircraft being built for the Air Ministry. For instance, if there be any foreign military Power which does not know enough about the most recent British experimental types to decide for itself whether its own aircraft are outclassed in the matter of performance, endurance or load-carrying capacity by forthcoming British types, and whether any such superiority is due to specific advances of a technical nature made by British designers, it can only be because that Power has shut its ears and its eyes to information that can be obtained without the least trouble.

As a matter of fact every military Power of any importance throughout the world knows perfectly well that it is possible to buy from the Aircraft Disposal Co. in this country war aircraft which, in regard to performance, compare very favourably with any machine now owned by the R.A.F., and that it can obtain from the Aircraft Industries of any of the great manufacturing nations, machines which will outclass British Service types in military performance, though they may not carry quite so much complicated and useless gadgetry.

The one thing which it is possible—though improbable—that they do not know, is how the Air Ministry manages to keep British aircraft behind those of the rest of the world in regard to the all important qualities of speed, and climb, which after all do determine whether the pilot of a given machine shall engage the enemy at his own or his enemy's chosen moment.

A PARABOLIC COMPLAINT.

A certain aircraft designer of very extended experience of the Air Ministry's manner and customs in regard to equipment requirements recently remarked that he had taken up jig-saw puzzles as a necessary part of his mental training. He thought that by the time that he was sufficiently expert to put together a 2,000-piece puzzle in under the half-hour, he should stand a fair chance of getting out a new design for submission to the Air Ministry in round about six months. His main fear was that the accounts which have recently appeared in the press concerning the use by the Chinese of luminously-painted starved monkeys as weapons of war would inspire some bright young Staff Officer of the R.A.F., and lead to monkeys, a modified R.L. tube for their illumination and projection, and monkey-proof fittings for the protection of pilots' seats forming part of the equipment of future British aircraft. He confessed that in this event he was afraid that he would have had to add to his training a course of menagerie

managing, which particular pastime had no attractions for him.

THE ONLY PURPOSE OF SECRECY.

Now the Air Ministry in its official capacity can afford to ignore complaints as to the details of its policy in regard to aircraft design so long as they can only be made in parliamentary form, and their insistence on secrecy in regard to detail of equipment and so forth makes it difficult publicly to insist on them for the futilely complicated requirements which they do in fact impose. And this apparently is the real purpose of that particular policy.

There are in fact quite a number of cases where the Air Ministry have made and have insisted upon provision of equipment considerably more absurd than the above-suggested cargo of war-monkeys, and but for the fact that one is permitted to discuss these "details of military equipment" there would be no difficulty whatever in holding up the departments responsible to that public ridicule which is the most potent of all weapons in dealing with Government administration.

From which it seems fairly clear that at least from a standpoint of the equipment cranks the hush-hush policy in force has its uses by keeping their activities out of the realm of useful public discussion.

RED TAPE AND WEARINESS.

A good deal of unnecessary complexity in equipment is the result of pure red tape and of weariness on the part of constructing firms who find it cheaper and less exhausting to fall in with the requirements of officialdom than to embroil themselves upon argument with those authorities at headquarters who may be able and willing to modify unreasonable regulations. Recently a representative of the Ministry reproved the designer of a large seaplane because the engines of the particular machine were not equipped with claws to suit a D.H. (Hucks) starter. Now this particular machine was already fitted with a gas-starter of the R.A.E. type and with hand-turning gears. The centre line of the airscrews when the machine was ashore was feet above the reach of the standard Hucks starter, and this particular apparatus has not yet been produced in either the floating or the amphibian form, so that under no possible circumstances could the fitting in question have been of any use whatever.

This fact had no influence with the gentleman in question: the claws were standard equipment for that type of engine and that sufficed for him. The designer in this case put the matter to the higher authorities and the matter was settled reasonably, but it ought not to be necessary for responsible officials either of constructing firms or of Air Ministry headquarters to be bothered over trivial idiocies of this type.

AN EXAMPLE OF MISPLACED INGENUITY.

Engine-starting arrangements provide one example of ridiculous waste of money, space and load-carrying capacity in Service machines concerning which it is possible to comment with some freedom. This is that monumental example of misplaced ingenuity which we owe to the R.A.E.—the gas-starter. With this apparatus, instead of starting up the main engine by direct mechanical methods, one first of all starts up a small auxiliary engine, which drives a gas pump. This gas pump delivers through a special distributor valve to the engine cylinders in such a way as to drive the engine round as a compressed-air motor. In so doing it charges the cylinders with an explosive mixture, drawn from the auxiliary engine's carburettor, which in due course is fired—sometimes by a spark taken from the starter magneto and distributed through the distributor of the main engine.

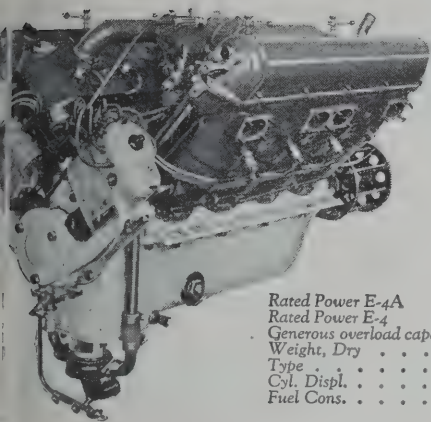
It is to be observed that in this apparatus one has an auxiliary engine to start. That engine drives a pump, which in conjunction with its accessories performs functions which the cylinders, pistons and magnetos of the main engine could perform quite efficiently if the main engine is rotated at reasonable speed by direct mechanical means. The whole apparatus becomes useless if there is any defect in the auxiliary engine, the pump, or their associated magneto or carburettor, which makes it impossible to start the starting engine. It may quite easily fail to start the main engine from defects of pump, carburettor, magneto, gas-piping or a distributing system which do not prevent the starter from being started.

In general it will not start any engine which has one blowing valve—and many engines which are in perfectly satisfactory running condition, have valves which blow appreciably when cold. And it may fail through a defect in the magneto ignition system which would have prevented the engine from being started in any case. In this event one will be left in uncertainty as to whether to look for the trouble in the main engine or in the auxiliary gear.

Provided that the main engine can be rotated at a reasonable rate its own organs will themselves perform all the functions at present fulfilled by the whole gas-starter bag-of-tricks

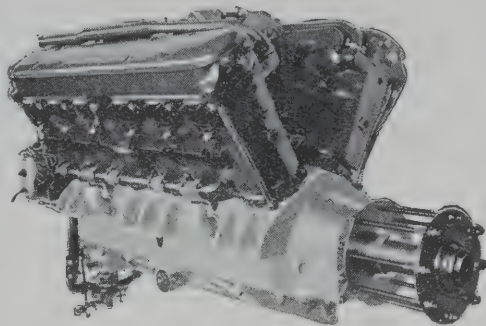
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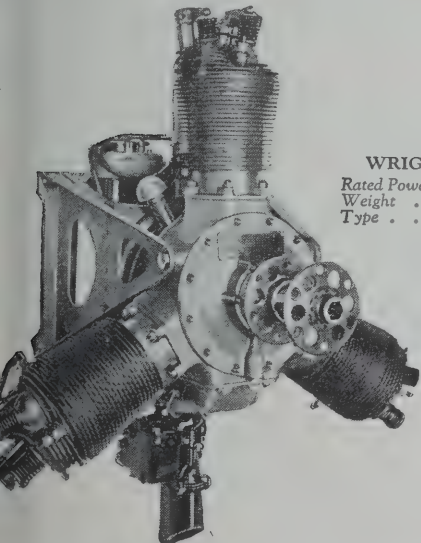


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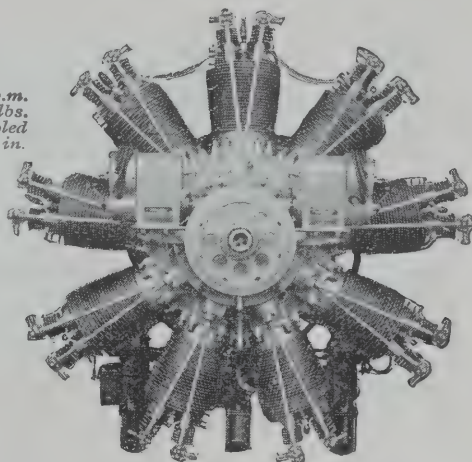
WRIGHT L-4—60 H.P.

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Type . . . 3-cyl., air cooled

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Rated Power
220 H.P. at 1800 r.p.m.
Weight . . . 442 lbs.
Type, 9-cyl., air cooled
Cyl. Displ. 787 cu. in.



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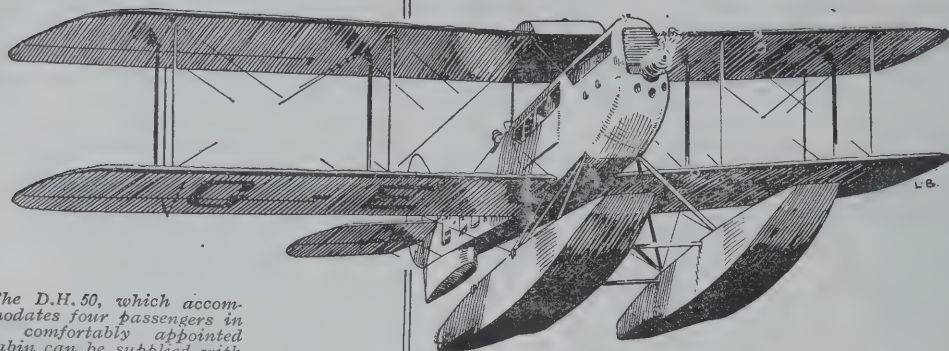
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if the engine of the gas-starter by itself were geared mechanically to the engine shaft, it could undoubtedly turn over at such a rate that the engine would inevitably start in the absence of some material defect sufficiently serious to interfere with its normal running. Thus the whole, pump, piping, gas distributor and auxiliary ignition wiring is merely useless, but is a potential source of trouble and an unnecessary waste of space and of load-carrying capacity. The very idea of carrying yet another petrol engine, complete with carburettor, magneto and all the other accessories which may cause an engine to give trouble at starting, in order to make starting easier, seems worthy of Lewis Carroll. The weight of the whole apparatus—despite its weaknesses and general inefficiency—is certainly greater than that of any other perfectly possible, simple and reliable mechanical starter. By the time the whole thing has been installed, it has added weight amounts to from about 90 lbs. in the simplest of a single-engined machine, to at least 150 lbs. for a twin-engine type. An electric starter of the motor-car type, with suitable gearing and batteries could probably be installed with less total weight and could not fail to be at least equally effective.

There is one quite effective class of starter which is light and compact enough to be used on certain foreign single-engine fighters. This consists of a small-bore, long-stroke engine, whose piston is driven through one complete revolution by admitting air or some other gas from a small storage bottle. By any one of a number of simple forms of gearing—the simplest is a rope wrapped round a pulley—the engine is made to revolve round two or three revolutions. If this fails to start

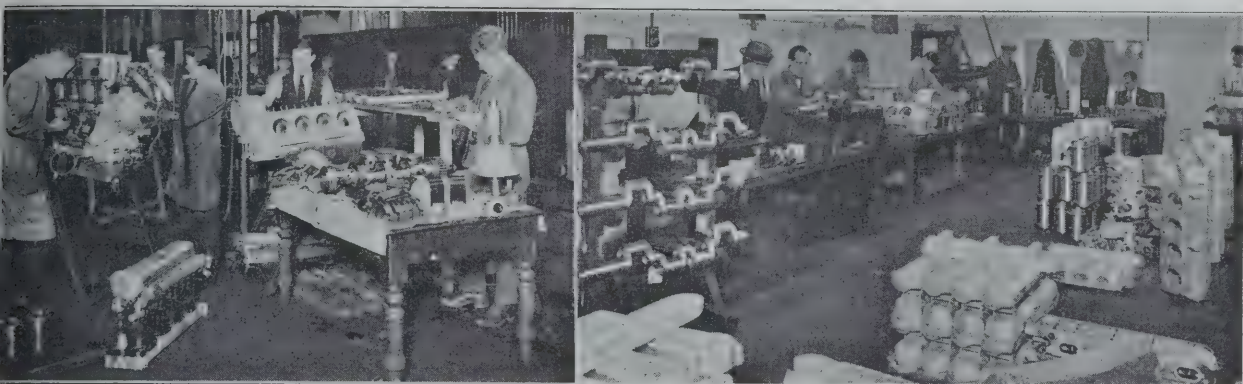
it the piston is returned—by hand or a spring—and the process repeated.

The objection to this form of starter lies in its dependence on bottles of compressed gas. These can have only capacity for a limited number of starts, and neither fresh bottles nor apparatus for recharging them are to be found growing whenever they may be needed. But there are many other methods by which energy required for starting an engine by somewhat similar methods can be supplied.

For instance it would not be impossible to ignite an explosive mixture of petrol and air behind the piston instead of using compressed air, and any ammunition expert could produce small explosive cartridges which could be used to drive a starting gear of this type. At the outside a charge of something less than that used in a Service revolver should be ample for starting practically any existing engine, so that fifty or a hundred charges could easily be carried about on any machine on which a starter was really necessary.

Say that every R.A.F. starter means 50 lbs. of useless weight added to a machine. Assume—and it is a very optimistic assumption—that no new Service aeroplane has a worse and none a better fate than to be saddled by one or another, or several conjointly, of the official gadget fiends, with a similar unnecessary load. Roughly every pound of extra weight carried on a machine of reasonably high performance means an extra pound of aeroplane to support it, and an extra pound of power-plant to propel it. And that is quite a sufficient explanation of the fact that British Service machines are behind those of other nations in performance.

BRITISH METHODS OF AERO ENGINE CONSTRUCTION.



INSPECTION AT NAPIERS.—On the left, a Napier Lion is being inspected after a test run and stripping. On the right, crankshafts, crankcases, cylinders etc., are being gauged and viewed.

On the invitation of D. Napier and Son, Ltd., one had recently the opportunity of visiting the Napier Works at Acton where the Napier Lion and Cub aero-engines are manufactured. It is pleasant to be able to record that the demand for Napier engines remains large and that the works—if not working up to their full output capacity—have at least a pleasant air of activity, and that by far the greater part of the work in the factory relates to aero-engines of one kind and another.

Unfortunately one has never yet had the opportunity of going over the works of any foreign firm of aero-engine manufacturers, though it is hoped that one day this opportunity will occur. But from one source and another it is ascertained that the British aero-engine works as a whole form a distinct contrast in more ways than one to the factories which manufacture a similar product in other countries. It is understood that aeronautical engineers of other nationalities who visit British aero-engine works are usually astonished at the relative lack of special machine tools and so forth in the British works, and are often quite unable to understand how a British manufacturer manages to turn out so highly-alloyed and intricate a mechanism with an equipment of tools which would serve equally well for almost any class of engineering production.

The reason for this state of affairs is probably to be found in our experience during the late war. When the war opened up, we had a smaller output of aero-engines than that of any other belligerent, and practically no factory equipment suitable for the manufacture of this class of supplies.

The war forced us to build up an engine industry on an exceedingly large scale, and in far too much of a hurry to permit of the simultaneous development of specially designed tools and so forth. The British engine designer had to go in the first place to design his engines so that they could be built without first building special tools, and secondly to devise jigs, fixtures, and a system of inspection which would allow of the accurate manufacture in large quantities at a reasonable cost of aero-engines of the very highest quality.

At the Napier Works at Acton there are to be found relatively few machine tools which are in themselves unusual or novel. One may find tools used for somewhat unexpected purposes, as, for instance, a couple of Alfred Herbert screw-gauge correcting machines which are used for producing the threads on the tablet heads of the Napier Lion valves.

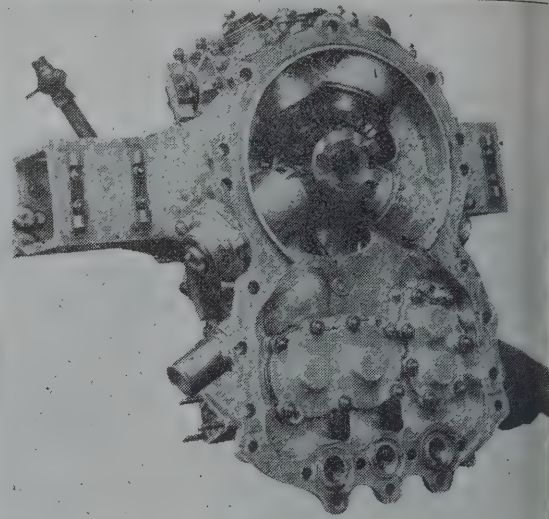
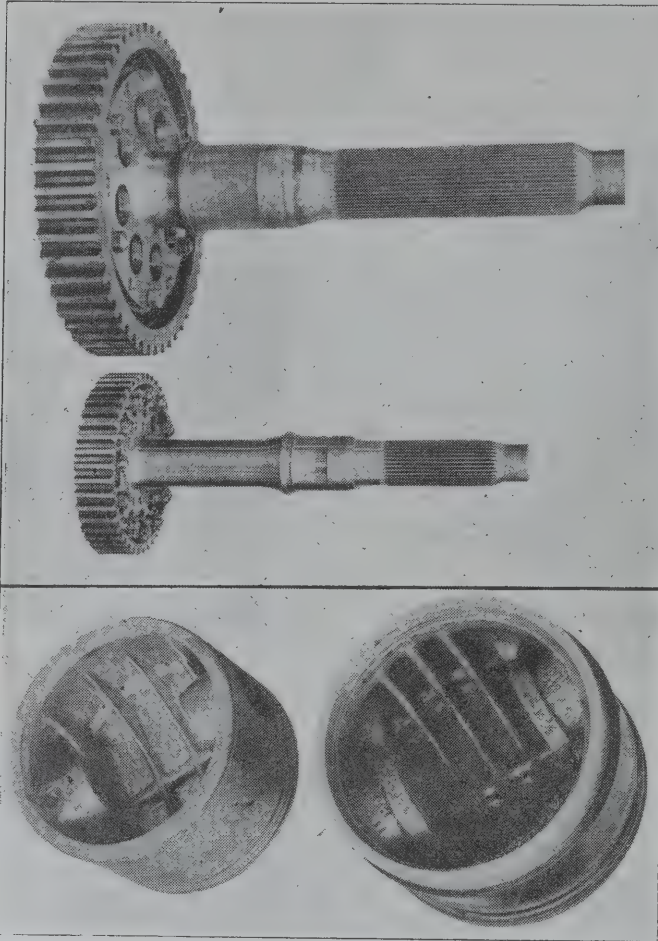
What one does find is a wonderfully developed inspection system whereby every part of the engine there produced is inspected, not merely when it is completed, but in every stage from its entry into the works either as a bar, a forging, or a casting, through every single machining process, so that as soon as either a fault in the material or an error in manufacture occurs, either the faulty part is scrapped, or the error is corrected.

It is perhaps not generally appreciated by those who are not directly engaged in manufacturing work of the class now in question, that the inspection of finished parts, important as it is, is but a small part of the whole duty of a properly-organised inspection department. When a part is finished it is either passed or rejected, and the inspector can do nothing towards curing the fault in operations which leads to the scrapping of the rejected.

The real business of inspection in work of this class is to prevent the production of faulty parts, and not merely to reject them when they are produced. Flaws in material are often revealed in a preliminary machinery operation. The tool setting for a roughing operation may be faulty, leaving the finishing cutter with too much, or uneven material to remove, and consequently causing small inaccuracies in the finished job. It is by catching these faults at their source and correcting them at once, that inspection produces its most valuable results.

And the Inspection Departments at the Napier Works are specially arranged that they shall prevent errors from occurring and shall check faults as soon as they occur, thus leading to the maximum possible output of correctly-finished parts, rather than that they shall merely reject components which are in any way defective.

By the use of carefully designed jigs and fixtures, and

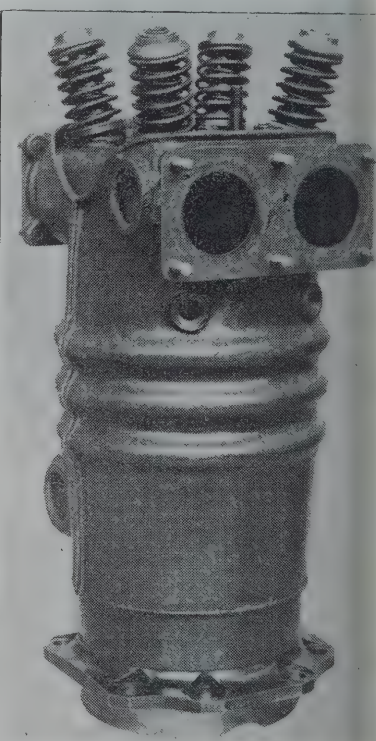
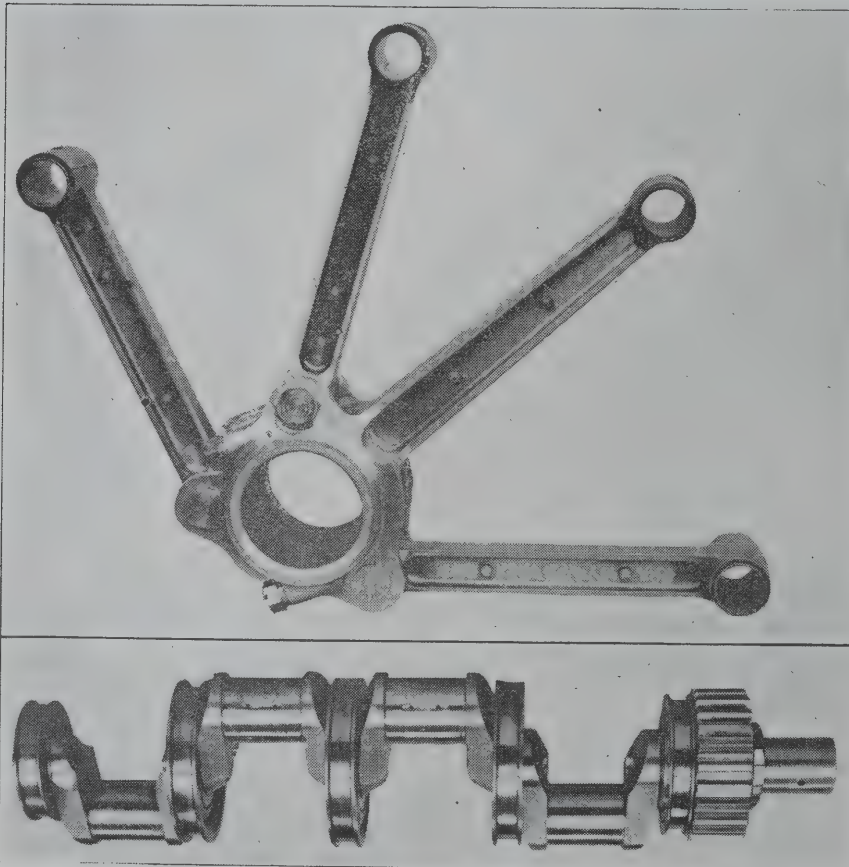


SOME NAPIER PARTS.—On the left are shown the propeller shaft and a piston of the Napier Lion and the Napier Cub. These give an idea of the difference in the size of the two engines. Above is the gear drive case of the Cub, showing the drive for the four sets of valve gear and oil pump casing.

with this system of detailed step-by-step inspection, Napiers find it possible to produce aero-engines which in regard to accuracy and finish of manufacture are certainly second to none in the world.

Possibly a factory entirely equipped with special tools for the production of Napier engines could be arranged to give

equally good results in this particular respect. But it probably not justify the very heavy capital charges involved unless a much greater market than now exists for engines could be guaranteed. And it has to be remembered that with the non-specialised equipment actually in use at Acton, it is a simple matter to modify details, to make



CUB COMPONENTS.—Crankshaft; big end assembly and cylinder.



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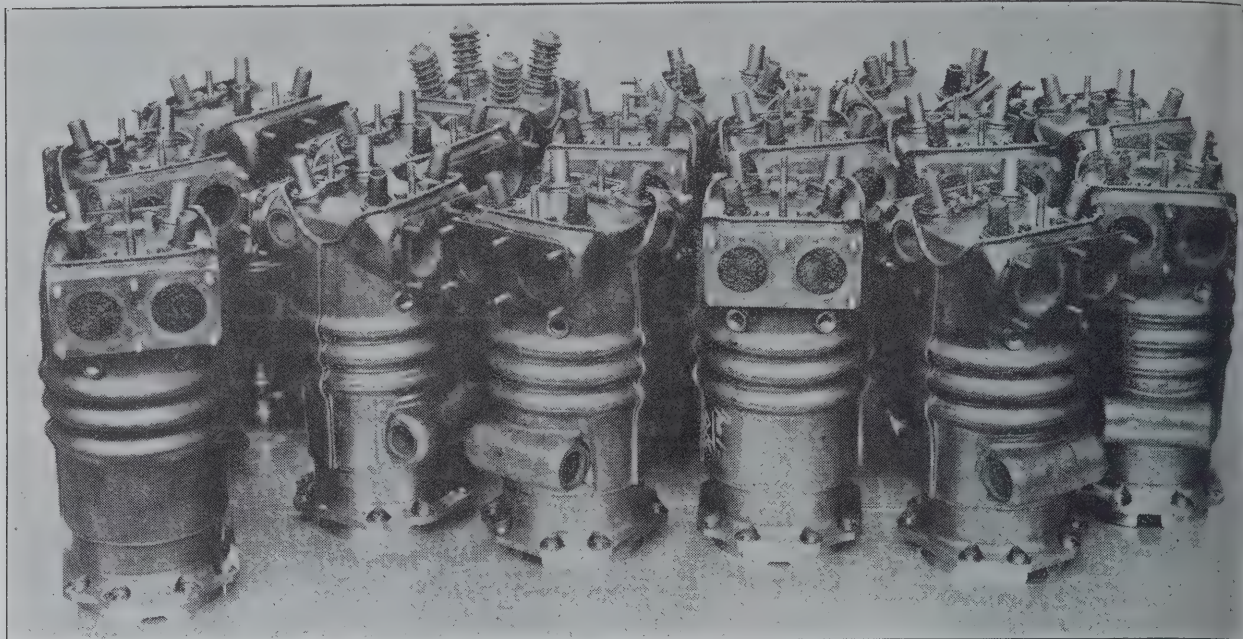
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The cylinders of one Napier Cub engine.

tensive changes in design, or even to put in hand an entirely new type of engine without having to re-equip the workshops. All that is necessary is the design and manufacture of new jigs and fixtures.

The British method of manufacture in this particular case at least has many advantages over some of the allegedly more modern methods which are in favour in other countries. The quality of the finished article is certainly not inferior, there is a good deal less of incentive to sticking to an old design because of the cost of tools for the production of a new one, and lastly, the British engineer's capacity to carry out with standard tools work which elsewhere has to be done on special plant, makes it a relatively simple matter to enlarge output to an enormous extent in the event of such an emergency as may be caused by war.

Life Insurance and Air Travellers.

The following letter has been received from Imperial Airways, Ltd. :—

Sir,—We were very interested to read in *THE AEROPLANE* dated the 15th inst. Col. Tizard's remarks on the insurance restrictions acting as a deterrent to possible passengers.

We have recently been going into this question and have succeeded, at any rate with one company, in obtaining the removal of these restrictions.

The insurance companies are not at all consistent and their policies can be in most cases divided into three headings :—

(1) Pre-war policies, which, of course, contain no questions in the proposal form or restrictions in the policy excluding flying risks.

(2) Policies issued during the war as a rule definitely exclude flying.

(3) On insurances effected since the war the proposer is generally required to answer questions as to whether he is likely to travel frequently, if at all, by air.

We took this matter up with the Commercial Union Assurance Co., Ltd., and they quite saw the inconsistency of this situation, and after providing them with the Air Ministry's statistics of passengers killed and injured since the commencement of Civil Aviation, they have agreed to remove from their life assurance policies all restrictions as to ordinary passenger travel by air without any additional premium being called for.

It is of course impracticable for them to endorse all policies to this effect, but we are hoping to make this known so that other insurance companies will remove their restrictions in the same way.

Sgd. (For and on behalf of Imperial Airways, Ltd.)

S. A. DISMORE.

An Obvious Error.

As the result of a typographical error the average fuel consumption of the Bristol Jupiter engine in the course of a 150-hour flying test carried out by Imperial Airways was given on page 405 of *THE AEROPLANE* of Oct. 22 as 2,418 gallons per hour. The correct figure is 24.8 gallons per hour.

Employment Wanted.

A first-class pilot with engineering and technical qualifications is at present seeking for a position. His engineering and aeronautical experience includes workshop, power-house and running-sheds' experience with the South African Railway (1909-1914), service with the R.A.S.C. (M.T.) (1914-1917), R.F.C. and R.A.F. (1915-1920), pilot with Air Transport and Travel Ltd. (1920-1921), R.A.F. in India (1921-1923).

For a period in 1911 the pilot in question served with Compton-Patterson in the South African Aviation Syndicate and during his original service in the R.F.C. he was engaged at the Royal Aircraft Establishment as a test and experienced pilot.

He has no objection to undertaking an engagement in the Overseas Dominions or abroad. Prospective employers will wish for further information will be put into direct communication on application to the Editor.



The engine end of the Fairey Ambulance Seaplane recently mentioned in "The Aeroplane." Note the Fairey Red screw, which although here used on an engine with 100 h.p. reduction gear, yet gave an increased speed of 4 m.p.h. over that given by a wooden airscrew at the same r.p.m.

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Titanine Schemes were employed on nearly all the winning machines at Lympne, October, 1923.



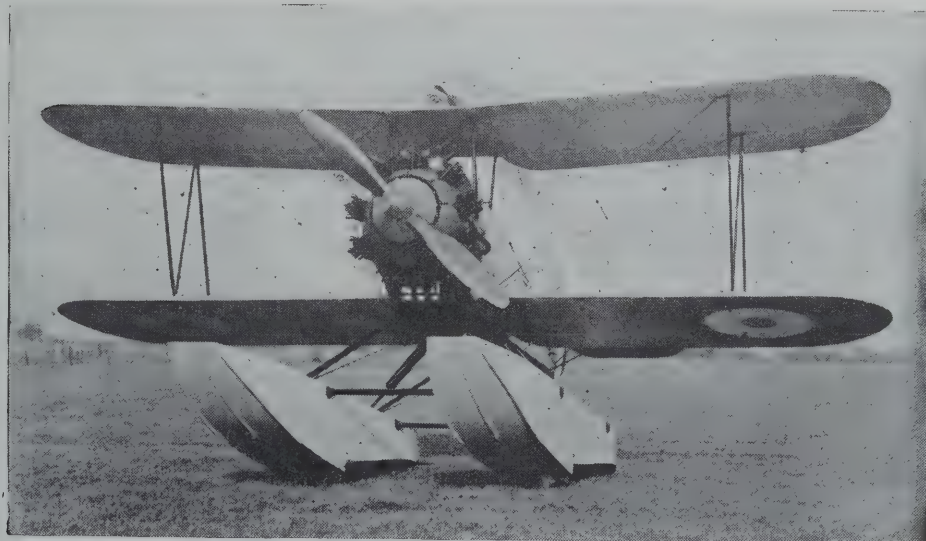
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THE SOUTHERN COUNTIES AVIATION CO. :—Left to right, a Cambridge passenger; Mr. Breakell, pilot; Mr. Peck, proprietor; and Mr. F. [unclear] ground engineer.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 12; Tuesday, 3, Wednesday, 2; Thursday, 19; Friday, 15; Saturday, 13; Sunday, 9.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 43, passengers 221, freight 7 tons.

AIR UNION:

Paris—London: Machines 17, passengers 61, freight 9 tons 4 cwt.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 9, passengers 20.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 4, passengers 5.

Total number of trips by British machines: 43, carrying 221 passengers. Foreign machines: 30, carrying 86 passengers.

Comparative Figures:

For week ending Oct. 26:

Machines, 73; Passengers, 307; Crews, 90; Total personnel, 397.

Corresponding week, 1923:

Machines, 49; Passengers, 116; Crews, 73; Total personnel, 199.

Corresponding week, 1922:

Machines, 82; Passengers, 355; Crews, 139; Total personnel, 494.

Corresponding week, 1921:

Machines, 57; Passengers, 134; Crews, 77; Total personnel, 211.

Corresponding week, 1920:

Machines, 111; Passengers, 192; Crews, 140; Total personnel, 332.

Croydon Notes.

Tuesday and Wednesday last week were very bad days. The only machine to complete a trip on Tuesday was a D.H.50 piloted by Mr. F. L. Barnard which went from London to Paris. Mr. George Powell and Mr. Woolley Dodd both tried to get through on the Cologne route but were forced down by the weather. On Wednesday the only machines to get through were the Bristol ten-seater piloted by Mr. Walters and a Goliath piloted by M. Lucas.

There was considerable perturbation of mind at Croydon on Saturday owing to an article appearing in a London paper stating that Imperial Airways were to run slow machines in future on all services. The management state that there is no truth in the suggestion.

Imperial Airways Ltd. have made arrangements for establishing 25 goods-receiving depots in London. Goods which are sent to any of these depots will be despatched at once to Croydon and sent by the next machine available to its destination.

It is interesting to note that the D.H.34s since they have been in operation have covered 1,250,000 miles, a distance equal to 50 times round the world. Their total flying time is 1½ years.

The three-engined Handley Page will probably be taken over from the Air Ministry this week. It is understood that it will be used for the operation of a night service.

The series of cartoons by Mr. Charles Dickson now hanging in the lounge of the Trust House is still receiving additions. Quite the best of the whole lot is that of Dr. Whitehead Reid.

More Good Work.

One of the most satisfactory features about the progress of aviation is the immense interest shown in flying when they get the chance by people who have hitherto had no opportunity of seeing any. One of the best instances of this is the work done by the Berkshire Aviation Tours at Stag Lane during their recent visit. Between Aug. 4 and Oct. 1 inclusive Mr. J. D. Parkinson carried 847 passengers. Mr. Kent with another of the Berkshire Company's machines was flying at the same place and he carried approximately 600 passengers.

It will be remembered that during that period the weather was by no means perfect for flying so that something in the order of 1,500 passengers in six days' flying for machines is extraordinarily good work.

Messrs. Parkinson and Kent who are now being joined by that excellent veteran Mr. Sparkes have been flying together at Cannock Chase, Staffordshire, recently.

In view of the extraordinary keenness shown by the general public it is all the more to be regretted that the Royal Aero Club have succeeded so well this year in making the sport of aviation almost into a secret vice.

A Long Glide.

On Oct. 13 at the Italian gliding meeting held near Asolo Herr Martens on the Konsul monoplane established a new record for distance covered by a glider by flying from the Mazzi to Dueville, a distance of 20.4 km. (12.6 miles).

The Monte Mazzi is some 1,400 m. (4,740 ft.) above sea level and about 1,200 m. above the landing point. At the time of the flight the wind did not exceed 1.5 metres per second (3½ m.p.h.) it is fairly certain that little or no assistance was derived from ascending currents, and the pilot claims that had the wind been three times as strong he could easily have covered twice the distance.

PERSONAL NOTICES.

DEATHS.

MEERS.—On Oct. 26, in London, Rupert Hart Meers, M.A.C. (late Capt., R.A.F.), of The Red House, Chislehurst, beloved husband of Alice Norah Meers, aged 44 years.

PECKOVER.—On Oct. 17, killed in aeroplane accident at Abu Hadda, Egypt, Richard Gurney Peckover, Flg. Off., R.A.F., late 72nd Fusiliers, second son of Mr. and Mrs. H. J. Peckover, of 8, Grove Road, Cricklewood, London, aged 26.

REDGRAVE.—On Oct. 23, at Abinger, Major Gilbert B. Redgrave, late R.A.F., younger son of Gilbert R. Redgrave, aged 40.

MARRIAGE.

CULLEY—BRIGHTSMITH.—On Oct. 20, at Little Shelford, G. Culley (late R.F.C.), the only son of the late Mr. H. R. Culley, Mrs. Culley, to Joan, the younger daughter of Mr. and Mrs. Brightsmith.

BIRTHS.

BRAND.—On Oct. 20, to Marie, wife of Sq. Ldr. Sir Quintin K.B.E., D.S.O., M.C., D.F.C., R.A.F., at Biggin Hill House, Hill, Kent—a son.

DORÉ.—On Oct. 22, to Miele, wife of Lt.-Col. Alan Doré, M.A. (late R.A.F.), of Eastcote Point, Pinner—a son.

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C. G. Grey

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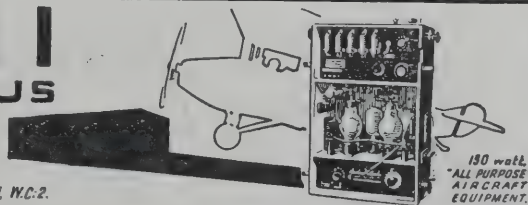
"FOR THE PEACE OF THE BORDER-LINE."



ON THE N.W. FRONTIER:—The De Havilland 9as (Libertys) belonging to "A" Flight, No. 27 (Bombing) Squadron R.A.F. Risalpur. These machines were designed in 1916 and still seem to be the best high-speed bombers in the R.A.F.

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THIS machine is a development of the famous AVRO 504K, the standard dual control training machine not only of the British Royal Air Force, but of almost every Military and Naval Air Force in the world, which machine it replaces. Among other improvements, the following are of interest: (1) A New "Oleo" undercarriage is fitted. (2) An adjustable Tail Plane arranged for dual operation, enabling the machine to be trimmed for different speeds and varying loads. (3) Altered Centre Section Plane and Wing Roots, allowing a much greater range of upward and forward vision: (4) New shape Ailerons to lighten and harmonise the lateral control with the elevator and rudder controls. (5) Direct gravity feed for petrol.

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and its great structural strength combined with these qualities makes it a safe machine in every sense of the word. The wonderful flying qualities of the machine from which it has been developed (AVRO 504K) are known to all to whom flying means anything, and these qualities have been retained and enhanced in its successor, the AVRO 504K, Mark II.

The Standard AVRO 504K, Mark II, carries pilot and one pupil. It can, however, be adapted, as a small commercial machine, to carry pilot and two passengers if required. It should be noted that the majority of the parts of the 504K and 504K, Mark II, are interchangeable.

Engine—Gnome Monosoupape 100 h.p. Rotary Type. The 110 h.p. Le Rhone or 130 h.p. Clerget may be fitted as alternatives.

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ON AMERICAN AVIATION.

By C. G. GREY.

While at Dayton one had the entertaining experience of attending a couple of meetings of the National Aeronautical Association of America Convention. Of course one has not time to take an interest in American aeronautical politics, but perhaps the impressions of an outsider on this subject may be interesting to people in somewhat similar positions over here. As far as one was able to dig into the matter one gathered the impression that the N.A.A. not only governs the Sport of Aviation but is also a propagandist body which hopes some day to convince the population of the United States that its members fly in the air instead of living on a farm or down a coal mine, or in an automobile factory or in the orange grove of Florida or the peach orchard in Georgia. (Some day Tin Pan Alley may write a dance song about pursuit ships and courts, or words to that effect, and then American aviation will be a recognised factor in the history of America instead of being merely a financial scandal.)

OUR WAY.

Over here the Sport of Aviation is run (or rather walked) by the Royal Aero Club of Great Britain and Ireland and the propagandist work is left undone by the Air League of the British Empire. Both are entirely amicable institutions which are composed of entirely amiable gentlemen who, like the House of Lords in "Iolanthe," during the past year or two "did nothing in particular and did it very well."

Our air racing depends almost entirely on the aircraft industry—called for short "the Trade." And there is a Joint Racing Committee of the Trade and of the Royal Aero Club which exists chiefly to discover whether the Trade can or cannot support the races and competitions promoted by the Aero Club and to see whether the Royal Aero Club can or will support the rules and regulations of its competitions to meet the wishes of the Trade. Between the two interests rules are framed which please nobody and produce singularly uninteresting competitions as in the King's Cup Race this year or result in classic races being abolished altogether—as in the case of the Aerial Derby, a race which has been flown in London since 1912 (barring the War years).

The Royal Air Force does not compete in open races, except that individual officers are allowed to fly private aircraft or even trade machines as private individuals. Consequently the Trade or private individuals have to supply the racing machines. During the past year the Trade firms have been either too busy or too poor to run racing machines, except in the King's Cup Race, which was supported because of loyalty to His Majesty rather than because anybody wanted a race. And so, barring the recent competition for two light aeroplanes at Lympne, for a prize put up by the Ministry, we have had practically no competitions this year.

AMERICAN METHODS.

The N.A.A., it seems, has had the Dayton Meet and the Baltimore Meet and the Baltimore Meet, and it is gathering in thousands of members and appears to one, from the outside at least, to be going very strong indeed. Also it seems to have its own racing regulations and to tell the Trade and its competitors that they can take them or leave them, as they like.

In fact the difference between the Royal Aero Club and the N.A.A. seems to be very much like the difference between a limited monarchy and a Republic as defined by the great Dooley some twenty years or so ago—"Hinnessy!" said Dooley "The difference between a Limited Monarchy and a Republic is that in a Monarchy the King does what he likes and then tells him and then blames himself, whereas in a Republic the President does what he darn-well pleases and then tells the People."—Which being interpreted means that the Royal Aero Club tries to please and gets itself cursed by everybody and the N.A.A. when a meeting is a frost as it seemed to

be at Dayton, blames the public for not coming to the meet. Anyhow the N.A.A. struck one as being a very live affair. It is not one's business to express opinions as to the Dominance of Dayton in the N.A.A. during the past year.

PRACTICAL OFFICIALS.

If the proceedings were not quite so animated as was the recent Democratic Convention they were a surprise to one who is only accustomed to meetings of the Royal Aero Club at which a dozen or two grave and reverend signors solemnly sit around and pass resolutions which have been spoon-fed to them by the Secretary and the Committee. Nobody ever puts up a fight about anything at the Royal Aero Club, whereas, to use the beautiful phrase of an American friend, the N.A.A. Convention seemed to be having "more fun than an acre of hilly-goats."

The whole point is that the N.A.A. seems to be so magnificently alive and the new administrative and executive officers seem likely to make it still more alive. Above all, the new officials are practical flying men, and that is an enormous asset to an association which has to do with flying.

Mr. Cabot, the new chairman, is not a pilot in the first flush of his youth. But he has had considerable flying experience which is of high value as a backing to the dignity which his personality and his social position give him in his important position.

Major "Shorty" Schroeder, the vice-president, is said to be one of the best pilots in America. Anyhow one can testify to his ability in that line, for one saw him flying in France some few years ago when he put up a very fine show in the last of the Gordon-Bennett races on a distinctly tricky racer with an engine which did not in the least like doing its job. Also the various records which he has put up from time to time show his determination to have the best or nothing. So one hopes to see him break all records in boosting the membership and efficiency of the N.A.A.

GETTING THINGS DONE.

Mr. Howard Wehrle, the new secretary, is the sort of man we should like to have in England to get a move on the Air League. One watched him at work at Dayton as the starter of all the events and one was filled with admiration. He has a way with him which gets things done, and he seems to have the special gift of carrying on an offensive (in the military sense) without being offensive. One could bear being ordered off an aerodrome by Howard Wehrle and his extensive vocabulary and his expansive smile without bearing him the slightest grudge, for one would know that he was just doing his duty in the most effective possible way. If he does not make the N.A.A. go it will be the fault of the N.A.A.

Mr. Castle, the treasurer, strikes one as being one of those sound, solid, reliable men who is specially designed for his particular job. The finance of a big show such as the N.A.A. is likely to become a great deal of watching. Money can easily be wasted on more or less wild-cat schemes to catch members, and Mr. Castle does not seem likely to consent easily to spending money on backing the nimble cat. He is much more likely to watch which way the cat jumps before backing it.

Altogether the N.A.A. is to be congratulated on its new executive officers. The N.A.A. has not merely the chance of a lifetime but the chance of an epoch in history. The time is ripe for an immense development in American Aviation. The President has come out with a public confession of faith in the future of flying and in the need for Air Power. The great newspapers are impressing on their readers the need for adequate Flying Services and for an Aircraft Industry which will be fit to stand behind those Services in time of war. That wonderful Trans-Continental Air Mail service is showing the people what American pluck and energy can do in developing air lines.

SIR JOHN SALMOND'S APPOINTMENT.

The Air Ministry announces :—

Air Marshal Sir John Maitland Salmond, K.C.B., C.M.G., C.V.O., D.S.O., has been selected to fill the post about to be created with effect from Jan. 1 next of Air Officer Commanding-in-Chief, Air Defence of Great Britain.

The Command to which Sir John Salmond has been appointed is a new command instituted in consequence of the scheme for the defence of the United Kingdom against air attack which was approved by H.M. Government last year.

The appointment of Air Marshal Sir J. M. Salmond as Air Officer Commanding-in-Chief the Air Defence Force of Great Britain is to be welcomed by all who have the safety of the country at heart.

The scheme for the formation of a Home Defence Force of 52 squadrons of the Royal Air Force, supplemented by an anti-aircraft ground force supplied by the Army, was sanctioned by the last Conservative Government in 1923. On the fall of that Government their successors were sufficiently wise to accept and to carry on with it, and at the present moment some 18 of the 52 squadrons are either formed or in process of formation.

With the appointment of Sir John Salmond to the command of this force, synchronising, as it does, with the return to power of the party which originally put the scheme into force, it seems reasonable to expect that no endeavour will be spared to carry the scheme through to completion as rapidly as possible.

John Maitland Salmond entered the Army in 1901, and the R.F.C. in 1912, taking his pilot's certificate in August,

1912, and proceeded to the Central Flying School. In November of that year he had become an instructor at that school. As Major, he commanded No. 3 Squadron, R.F.C., which he left for France on Aug. 12, 1914. He was promoted to Col. in command of the second wing in 1915, to Brigadier-General in 1916 and to Major-General in 1917. In 1918 he served as Director-General of Military Aeronautics, returning to France as General Officer Commanding Royal Air Force at the beginning of 1918, succeeding Sir Hugh Trenchard in this command.

In August, 1919, he became Air Vice-Marshal, R.A.F. In 1920 was appointed to the command of the Inland Force. In 1922 he visited India to inquire into the state of the R.A.F. in that country and on the conclusion of his mission he went to Iraq, and took over the command of the whole of the British forces in that country, as Air Officer Commanding, under the experimental scheme of placing the responsibility for the maintenance of order in that country upon the R.A.F. He was promoted to Air Marshal on receiving this appointment.

Thanks to Sir John Salmond's tact and ability this scheme has worked extremely satisfactorily and without any of the serious difficulties which were predicted by those who trusted the placing of military forces under the command of an officer of the newest of H.M. Services.

On his return from Iraq, and after an interval of well-earned leave, he returns to duty charged with a task which will give ample scope for his wide knowledge and experience and which could not be entrusted to more competent hands.

THE NEW GOVERNMENT.

The return to Parliament at the present election of over 400 Conservatives, and thus ensuring for the Conservative Government a majority of over 200, would seem certainly to ensure that for the next three or four years at least this country may rely upon continuity in matters of policy, in place of the frequent and disturbing divagations which have characterised political action of every kind since the end of the war.

To the Royal Air Force and to the aircraft industry of this country nothing at the present moment could be more satisfactory than the certainty of a few years of steady development along settled and well-considered lines, and there is little doubt that it is from a strong Conservative Government that one has the most right to expect such a policy of steady development in connection with Aviation.

It is perhaps a little doubtful whether the overwhelming strength of the Conservative Party in the new House of Commons does not rather lessen the prospects of sound development of our Aerial Defences. If, as one believes, the real danger which threatens this country from the Labour Party as a potential instrument of Government, results from the fact that that Party is swayed rather by sentiment than by understanding, it has to be remembered that in the Conservative Party that particular form of sentiment that manifests itself as respect for tradition, is fairly strongly implanted.

Although the Conservative Party's particular form of sentimentalism is one less liable to lead to violent political experiments, it is by no means free from danger, particularly in regard to the development of the R.A.F. For among the generality of Conservative members there cannot but be a considerable majority to whom the old established traditions of the Navy and the Army make a very familiar and potent appeal, and to whom the Air Force is a relatively unknown factor.

Now there is not the least room for doubt that, as between the older Services—particularly the Navy—and the Air Force, there is still a good deal of jealousy.

The movement for the control by the Navy of its own Air Service is far from being dead yet, and even among a certain proportion of the senior officers of the Army it is still held that any and every aircraft engaged in co-operating with land forces should be exclusively controlled and manned by the Army itself.

Those who hold views of this nature may not unnaturally expect to find among the Conservative Party a larger proportion of individuals ready to accept their arguments and to lend their aid in an attempt to add to the old-established influence and prestige of the two Senior Services rather than to uphold the claims of the Royal Air Force. A somewhat vigorous renewal of the attack on the R.A.F. by the older Services may therefore occur in the near future.

It may be hoped that the risk of success of such a movement will prove to be small, but it is enlarged by the enormity of the Conservative majority. With a reasonably strong opposition, the risk on this ground would be negligible—

not so much because any opposing party can be counted on to appreciate the merits of the question as because it would inevitably take advantage of any proposal to increase the power and prestige of either the Admiralty or the Air Office to embarrass the Government.

Fortunately, as one believes, the result of the General Election of last year has served as a distinct lesson to the super-traditionalist section of the Conservatives, and although the danger of increased attention to the pretensions of a large section of naval opinion on the subject of the control of the Air Services is probably enlarged by the vastness of the party's majority, a reasonably firm attitude on the part of the Air Ministry and of those who support it can scarcely fail of the required effect.

Fortunately, among those high in the councils of the Conservative Party there are those who have some considerable knowledge of the Air Force and who may be relied upon to resist any tendency to reaction in this matter.

Sir Samuel Hoare, the last Conservative Air Minister of certain of high rank in the next Cabinet. There will be those who will regret the improbability of his again filling the post, but support of the Air Ministry by a Minister directly involved in that Department will count for a very great deal in matters of broad policy.

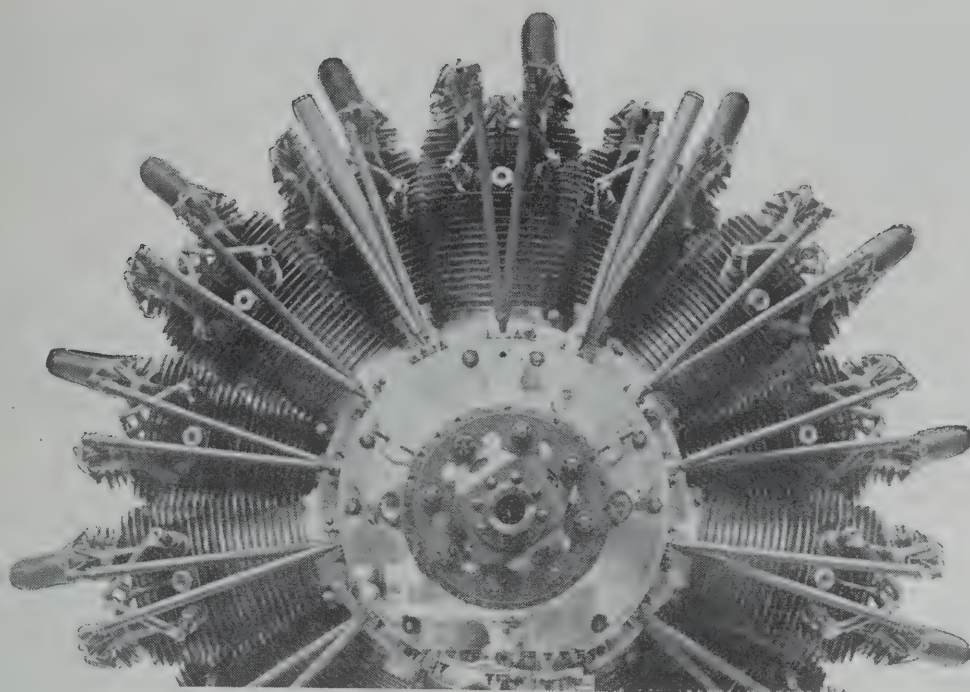
And it is a sound broad policy that will endure, that the R.A.F. and the Air Ministry need at the present moment quite as much as sound detail in administration.

The Duke of Sutherland, who as Under-Secretary of State for Air, so ably seconded Sir Samuel Hoare in the Government before last, is also likely to play a more important part in the next Ministry than he did in the one before last. His name has been mentioned as a possible Air Minister, and with his previous experience, his undoubtedly ability and keen interest in aeronautical affairs, render him eminently a suitable occupant of that post.

Another name that has been mentioned as that of a possible Air Minister is Major-General Sir Frederick Sykes. Undoubtedly possessed of very great ability, and undoubtedly alive to the importance of aeronautical progress, the former Director-General of Military Aeronautics, as Air Minister, could be relied upon to keep any Government of which he formed part fully alive to the importance of the Ministry over which he presided. But unfortunately the particular views on military aeronautics associated with his name are scarcely those which one can commend as sound and practical. On the whole it is to be hoped that Sir Frederick Sykes' aeronautical activities in the coming Parliament will be confined to criticism rather than extend to administration.

The only other name which one has yet heard in this connection is that of Mr. Winston Churchill. If it is safe to regard the past as a good index, probably no single person in the country would so certainly make the ideal Air Minister—but one is afraid that this particular suggestion is based on hope rather than on probability. After all, Mr. Churchill is not even officially labelled as a Conservative.

Yet one may regard it as certain that from the beginning



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The JAGUAR 385.425 h.p.

14-cyl. Air-cooled.

This engine represents the highest point yet reached in the development of the air-cooled aero engine. The design has been the subject of searching tests, both on the brake and in flight.

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At normal speed,

1,700 r.p.m., 400 b.h.p.

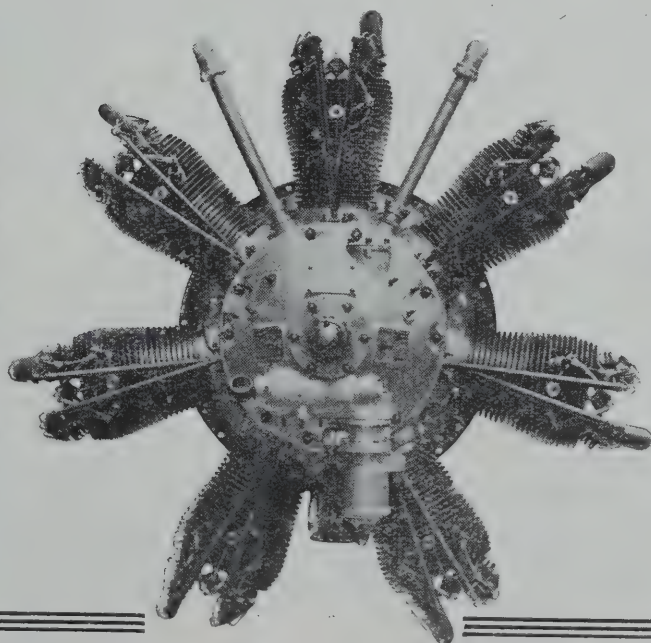
Petrol consumption,

55 pts./b.h.p. 312 Litres per b.h.p. hour.

Oil consumption, 03 pts./

b.h.p. 017 Litres per b.h.p. hour.

Weight, complete
760 lbs., 346 kgs.



The LYNX 170 h.p.

7-cyl. Air-cooled.

The "Lynx" is an ideal engine for Training Aircraft. It is most accessible — being superior in this respect to any other aircraft engine. Fuel consumption is very low and construction very simple.

The following is the guaranteed minimum performance: —

At normal speed,

1,650 r.p.m., 175 b.h.p.

Petrol consumption,

55 pts./b.h.p. 312 Litres per b.h.p. hour.

Oil consumption, 03 pts./

b.h.p. 017 Litres per b.h.p. hour.

Weight complete
460 lbs., 209 kgs.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Mr. Churchill will exercise in the House the influence that is proper to his personality, and may feel about as certain as it is possible to feel in so uncertain an affair as politics that his influence will be exercised unflinchingly in the right direction in regard to the Air Ministry.

Col. J. T. C. Moore-Brabazon, who, under the last Conservative Government, was Parliamentary Secretary to the Ministry of Transport, may reasonably be expected to hold in the next an even more important position. The possibility that he may become Under-Secretary of State for Air has been mentioned in some circles. Of course, the fact that Col. Moore-Brabazon has so thorough a technical knowledge of aeronautical affairs rather lessens the likelihood of his succession to this post, but as his knowledge of motoring

affairs did not keep him out of the Ministry of Transport particular consideration may in his case again be overlooked. Whatever the event, he will exercise a strong influence in favour of a steady and sane development of both Service and Civil Aviation.

One has no very strong ground for believing that any of the above-mentioned suggestions, as to how the posts of Minister and of Under-Secretary of State for Air are to be filled, are based on particularly inspired information. But one would emphasise the fact that a Government supported by so large a number of potential office-holders, with first-hand knowledge of the present needs of our Air Service, can scarcely fail to pursue an informed and intelligent policy.

Australia's Air Defence.

The Sydney correspondent of the *Daily Telegraph* reports that Wing-Cdr. Goble, the Chief of the Air Staff, giving evidence before the Federal Public Works Committee on the proposed Air Force station at Richmond, New South Wales, said that Sydney was the most important strategic centre in the Commonwealth. Steps should be taken without delay for its defence.

The most effective defence was an active aerial offensive. The use of aerial bombs and torpedoes against lightly protected and unprotected vessels should enable the Air Force to repel an attack by sea. The existing coastal defences of Australia depended chiefly on long-range guns, whose effectiveness depended on the use of aircraft for observation and range-finding. Richmond as a site had many advantages. It was far enough from the coast to remove the danger of bombardment from the sea; the ground was excellent for flying purposes, with room for expansion if necessary; the roads were excellent, and it was at effective striking distance from Newcastle.

The proposed plan for air defence is spread over seven years and provides for the formation of Air Force units with a permanent nucleus of one-third the total strength, the remaining two-thirds being drawn from the citizen forces.

The Schneider Trophy Race.

The Royal Aero Club has received official notification from America that owing to the withdrawal of Italy and the accident to the British machine the Americans would not claim a walkover and that the Schneider Trophy race for this year would therefore be cancelled.

The Royal Aero Club has cabled to America its appreciation of this very sporting action of the Americans and expressing the hope that next year England would be fully represented in the race.

At present it seems unlikely that the Americans will build any new machines for the race. They have a Curtiss seaplane racer capable of doing 240 m.p.h. and this is being stored

away carefully and will be thoroughly overhauled for next year's race.

The World's Height Record.

On Oct. 10 M. Callizo made an attempt on the World Height Record, flying a Gourdou-Leseurre monoplane. The barograph registered a height of 11,000 metres (36,080 feet), but on calibration by the *Conservatoire des Arts et Metiers* this was raised to 12,066 metres (39,576.5 feet) thereby exceeding the previous World's record set up by M. Lecoq, by 921 metres (2990.8 feet).

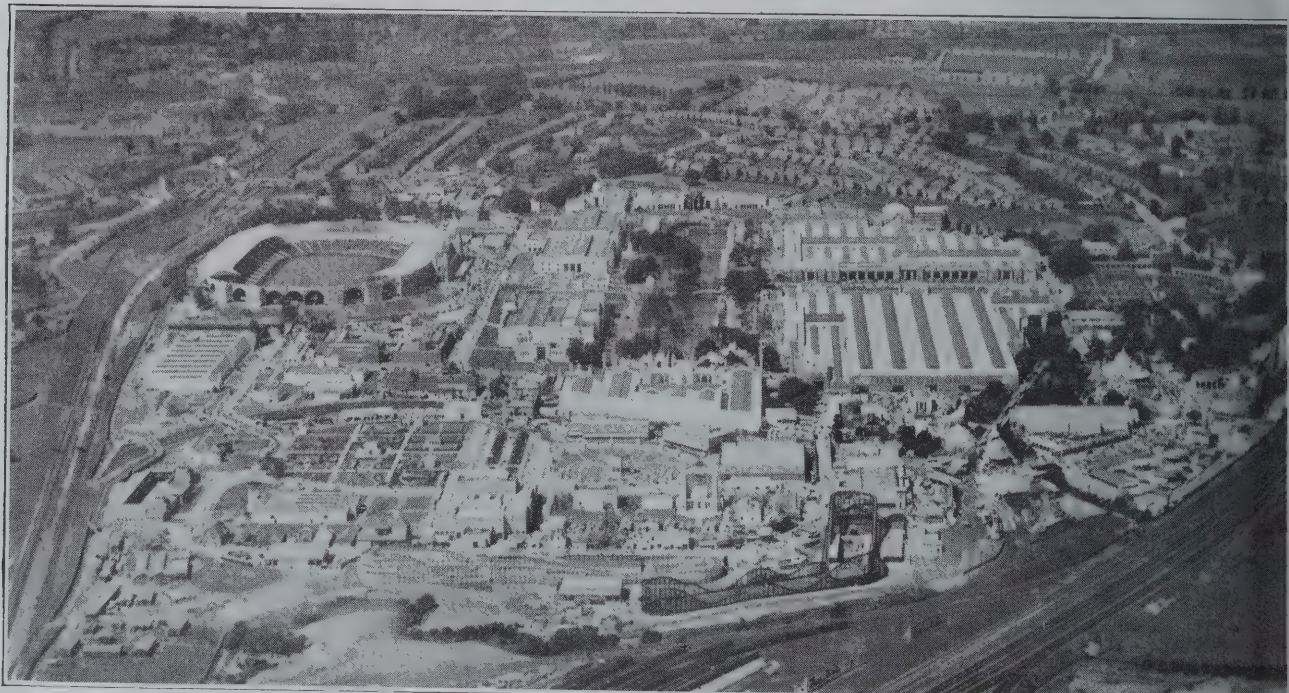
The machine used was an all-metal, rigidly-braced monoplane, equipped with a 300 h.p. Hispano-Suiza engine, Rateau supercharger, and Lamont 1924 type strut radiators, specially developed for high-altitude fighting. It was during the course of its official tests that the above record was made, and during the flight the machine carried its normal useful load of 200 kilograms, the machine-guns being replaced by oxygen cylinders.

With the exception of the engine, supercharger and radiators, the whole of the engine and most of the equipment was manufactured by Gourdou-Leseurre. This equipment included the oxygen apparatus, barograph, airscrew, etc.

French Subsidies to be Increased.

According to *The Times* the Finance Committee of the French Chamber of Deputies has approved an increase of 11,500,000fr. (about £135,417) in the Government subsidy to the commercial air service companies. M. Laurent Eynac, head of the Aeronautical Department, had asked for an increase of 15,000,000fr. (about £176,450), so that he has obtained the greater part of the amount he desired.

If Parliament in its turn votes the increased subsidy, it is expected that the Toulouse-Casablanca service will be augmented, and it is possible that the services between Barcelona and Africa via Palma and from Casablanca to Dakar may be opened. It is also thought that trials may be made on the Marseilles-Antibes-Ajaccio-Tunis route.



A FORTHCOMING ADDITION TO LONDON'S RUINS?—A view of the British Empire Exhibition, Wembley, which closed on Saturday, taken by the Surrey Flying Services. In a few years the buildings should have reached the state of decay which many of those at the White City, Earl's Court, and the Crystal Palace have now reached.


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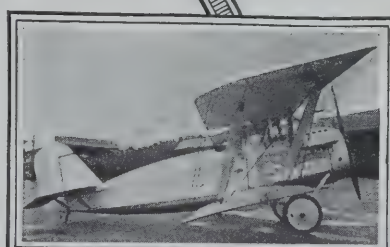
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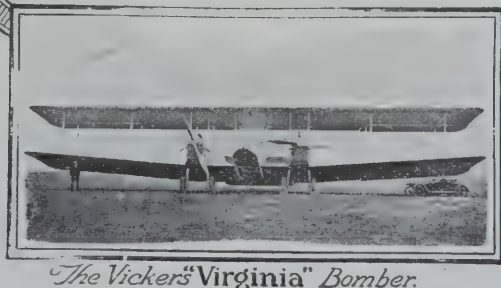




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THE ROYAL AIR FORCE.

The London Gazette.

Oct. 28.

GENERAL DUTIES BRANCH.—Plt. Off. F. E. Watts is promoted to the rank of Flg. Off., with effect from Sept. 24, and with seniority of Mar. 24. Flg. Off. C. D. Robertson, M.M., is transferred to the Reserve, Class C. (Oct. 29). Flg. Off. P. W. Adams relinquishes his S.S. comm. on account of ill-health and is permitted to retain his rank (Oct. 29). Flg. Off. A. G. Lawe (Lt., Lincs. R.), relinquishes his temp. comm. on return to Army duty (Oct. 16).

STORES BRANCH.—Flg. Off. F. C. C. B. Hichens is granted a perm. comm. in the rank stated (Oct. 29). The notification in the *Gazette* of July 29, concerning Flt. Lt. F. Binns, M.B.E., is cancelled. The rank of Flt. Lt. (acting Sq. Ldr.) F. Binns, is as now described, not as stated in the *Gazette* of Sept. 26.

MEDICAL BRANCH.—Flg. Off. J. G. Russell, M.B., B.A., is promoted to the rank of Flt. Lt. (Oct. 30).

Appointments.

Week ending Nov. 4.

GENERAL DUTIES BRANCH.—Flight Lieutenant I. M. Matheson, to No. 7 Sqdn., Bircham Newton, on transfer to Home Estab., 1/11. Flying Officers J. F. Horsey, to R.A.F. Depot, on transfer to Home Estab., 28/9. F. H. Astle, to No. 3 Group H.Q., Spittlegate, 30/10. C. W. A. Scott, to Armament and Gunnery School, Eastchurch, 1/11. G. M. Trundle, to Aden Flight, Aden, 11/10. I. M. Morris, E. C. Ridlington, L. W. Mercer, and F. C. T. Rowe, to No. 14 Sqdn., Palestine, 1/11. G. R. C. Spencer, to No. 20 Sqdn., India, 12/9. B. J. J. Nimmo, to No. 5 Arm. Car Co., Iraq, 14/10. F. B. Lawrie, to No. 30 Sqdn., Iraq, 30/9. G. C. Shepherd, to No. 84 Sqdn., Iraq, 18/9. S. T. B. Cripps, D.F.C., to Arm. and Gun. School, Eastchurch, 1/11. E. A. Slater, to School of T.T. (Men), Manston, 3/11. (Hon. Flt. Lt.) A. R. Prendergast, to No. 24 Sqdn., Kenley, 7/11. C. B. Horsfield, to No. 19 Sqdn., Duxford, 10/11.

Pilot Officers Y. W. Burnett, J. S. Dick, and R. Barrett, to No. 111 Sqdn., Iraq, 30/9.

MEDICAL BRANCH.—Flight Lieutenant (Medical) T. P. Harpur, to No. 111 Sqdn., Duxford, 24/10. Flying Officer (Medical) G. J. Hanly, to Research Laboratory and M.O.S. of I., Hampstead, for short comm. on appointment to a S.S. comm., 23/10.

STORES BRANCH.—Flight Lieutenant (Accountant) E. C. M. K. to Aircraft Depot, Iraq, 16/10. Flying Officer (Stores) D. W. Dear, Stores Depot, Egypt, 9/10. Flying Officer (Accountant) A. J. M. to R.A.F. Trans-Jordan H.Q., Palestine, 22/9.

Polo at Baghdad.

The following is taken from the *Times of Mesopotamia* of Oct. 3, with due acknowledgments:—

The tour of the Basrah polo team came to an end on Oct. 3, when they were beaten by the Air Vice-Marshal's team by four goals to three. On Wednesday the Basrah players defeated No. 8 Sqdn. in a well-contested match in which they held the upper hand throughout. The squadron was represented by Sq. Ldr. Sowrey, Flt. Lt. C. Flg. Off. Vincent, and Flg. Off. Adams, while the Basrah team was unchanged—Maj. Atkins, Flt. Lt. Bowen, Mr. Challoner, and Mr. Brown. In the first chukker Mr. Challoner and Mr. Brown scored for Basrah; in the second there was no scoring; in the third Mr. Brown again scored, and in the fourth Mr. Challoner added a fourth goal for Basrah. The Basrah ponies had obviously benefited by their performing much better than in the previous match against the Magpies. A feature of the match was a particularly good goal scored by Mr. Challoner; his pony was galloping for the ball at right angles to the goal-mouth when he hit a fine shot under his own neck; the ball made straight for the goal, but, in order that it should be no mistake, he wheeled and helped it through with another good shot. This was the most spectacular goal of the week, and was loudly applauded.

French Air Manœuvres.

On Oct. 8-9 aerial manœuvres on a grand scale were to have been held by the French Army in the Rambouillet area under the direction of General Barrès commanding the Second Air Division. The units taking part were to have been the 34th Aviation regiment (observation), the 31st Aviation regiment (reconnaissance), and the 22nd Aviation regiment (night bombing), the 3rd Aviation regiment (fighting), the night-flying squadrons from the Paris garrison, and several observation groups detached from different Army Corps.

Owing to furious gales that broke over Northern France the operations were postponed at the last moment but not before disaster had overtaken certain of the aircraft involved.

At Villacoublay seven aircraft were wrecked in attempting to take off and at Buc three aircraft were put out of action. At Le Bourget, an aeroplane of the 34th regiment crashed, and the pilot and observer were killed.

At Rambouillet, one pilot made two attempts to get off but both machines were overturned before taking off.

The Minister of War has ordered an inquiry into the fatal accident at Le Bourget and it has been suggested that the responsibility for sending the machines up in such weather and in the face of meteorological reports which forecasted the likelihood of a gale should be investigated.

Poland's Naval Air Service.

An official communication states that the Polish Ministry of War has submitted the following minimum programme for the Naval Air Forces of Poland in conformity with the terms of the Washington Convention. This programme does not constitute a return of the present naval and air forces of Poland but is the programme which is to be put into execution during 1925 and the following years.

Heavier-than-Air:—Complete Aircraft, including spare machine in units but excluding training machines,—Bombing, 36; Fighting, 36; Reconnaissance, 54; Spare engines in units, 252.

Personnel (air service and land service): Total number (Budgetary effectives), 1,700 officers and men.

Lighter-than-Air:—Airships, 0; Captive balloons, 6.

Some New World's Records.

The following records have been homologated by the F.A.A. and now stand as World records:—

Altitude.—France: M. Callizo, Gourdou-Lesurre monoplane (300 h.p. Hispano-Suiza engine); Villacoublay, 10,102,066 m.

Useful load carried.—250 kgs.

Speed over 100 kms.—Czecho-Slovakia: Sjt. F. Lehl, Aero 12 (260 h.p. Maybach engine); Prague, 7.9.24, 184.5 km.p.h.

Speed over 200 kms.—Czecho-Slovakia: Sjt. F. Lehl, Aero 12 (260 h.p. Maybach engine); Prague, 7.9.24, 202.5 km.p.h.

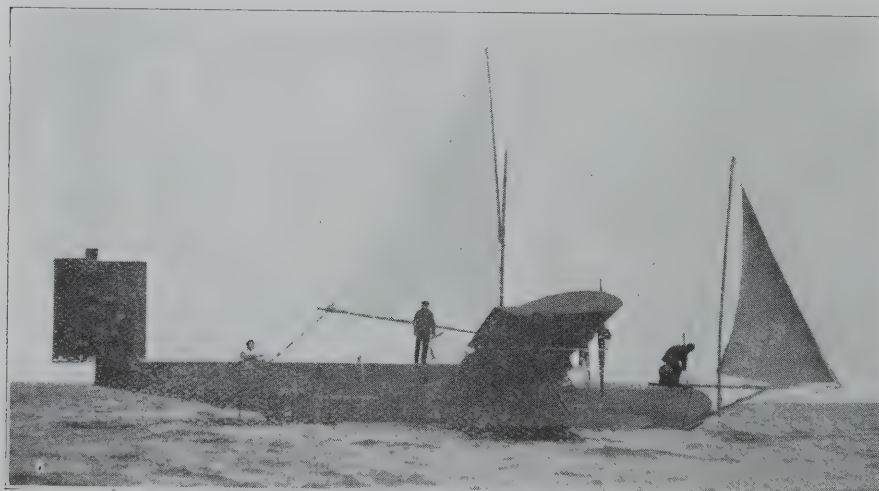
Useful load carried.—500 kgs.

Speed over 100 kms.—Czecho-Slovakia: Capt. J. K. Kal, Aero 12 (260 h.p. Maybach engine); Prague, 7.9.24, 202.5 km.p.h.

Speed over 200 kms.—Czecho-Slovakia: Sjt. B. Kasp, Aero 12 (260 h.p. Maybach engine); Prague, 7.9.24, 189.5 km.p.h.

Altitude.—Sweden: Lieut. B. Krook, Heinkel S.1 seaplane (360 h.p. Rolls-Royce engine); Stockholm, 18.8.24, 5,691 m. Useful load carried (seaplanes).—250 kgs.

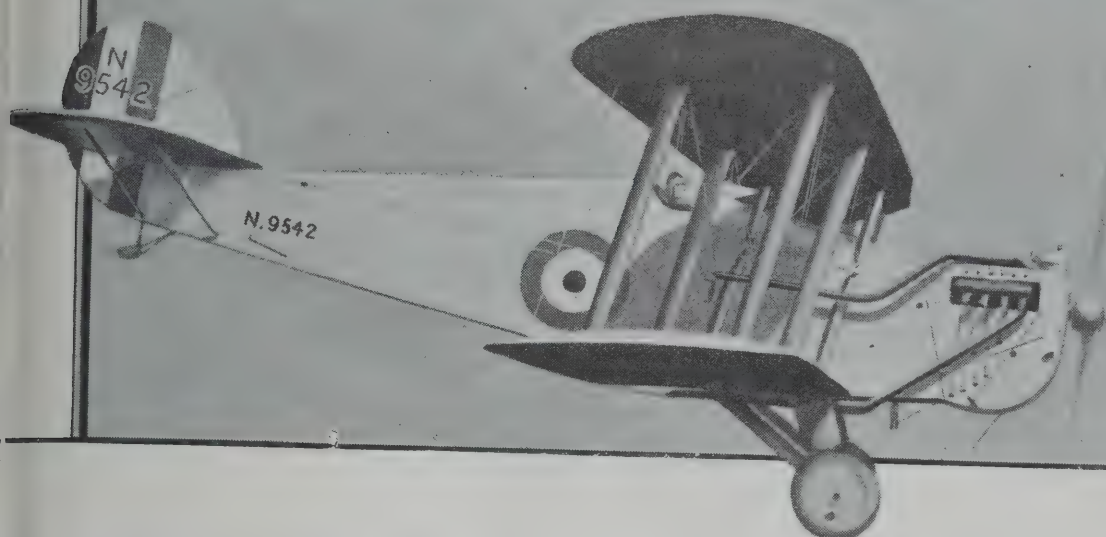
It will be noticed that Sweden and Czecho-Slovakia, for the first time, have put up some World records.



SAILING A SEAPLANE.—The Rolls-Royce R.O.II duralumin flying-boat, fitted with two Rolls-Royce Eagle engines, under sail. The rigging here shown is obviously of a makeshift nature, but there is no reason why a machine of this size should not carry light masts and sails and thus provide an auxiliary method of manœuvre in case of engine breakdown.

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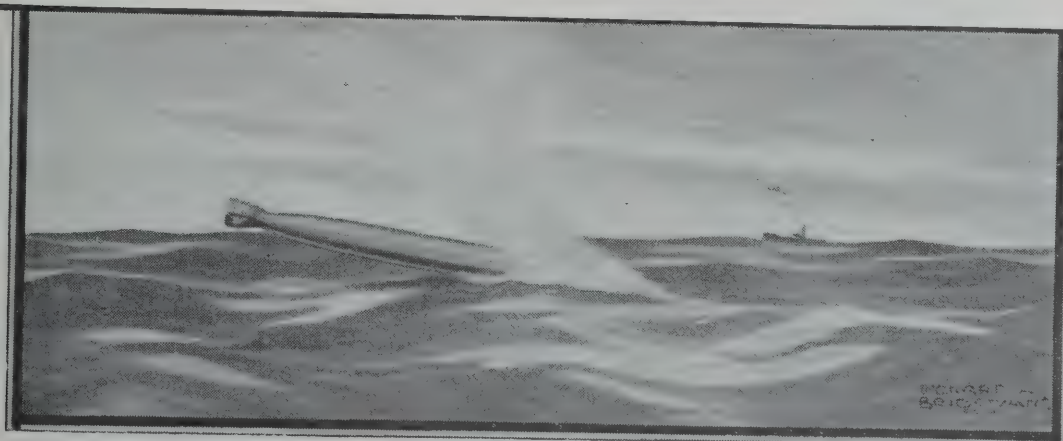
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"A TIME MAY COME—."

The Tender met me at the station, and it was not long before I saw an old familiar aerodrome coming into view. I grew puzzled. What on earth was I doing at London Colney? I ought to be up at Ramleh, in Palestine. For the life of me I could not think clearly. How had I come home! How long had I been on leave! We drew up at the Mess and I walked in. Here, at any rate, I managed to collect my thoughts a little, for I realised that I knew everyone.

"Hallo Stiff!" shouted Swin, "How on earth have you managed to wangle such a long leave?" "Where the Hell have you been all this time?" cried another.

Try as I would, I could remember nothing.

"I say, how long is it exactly that I've been away?" I managed to get out after greeting everyone.

"Oh, only about a hundred years, or, to be exact, about five." This from O'R, who, I suddenly remembered, had once invented a joke all on his own.

"Good Lord! You don't mean that. Why —"

At this moment the Major entered. (It suddenly struck me that he must now be a Squadron Leader or some such thing.) "Stiff, my son, I'm glad to get you back. When I heard from the Wing to-day that you would arrive shortly it took me right back to our last show, Aleppo way, when the rocks proved harder than our old B.F. and you were put to sleep. They tell me your memory is affected sometimes."

"Yes, Sir, it is, that's why they have given me a ground job; in case I should forget, I suppose, whilst flying. Ah well, I must grin and bear it all, and, anyway, I'll be able to go up with you all in turn if you can borrow a two-seater. That is, Sir, barring O'R, with whom I'm damned if I fly again. Do you remember —"

"My child, I'm quite reformed," broke in O'R. "I climb to twenty thousand feet now before I turn, and painted on my 'Little Sweetheart's' struts you'll find my motto 'Safety First.'"

"You must be reformed! Last time I saw your Sweetheart's struts they flaunted a pair of silk stockings."

"Ah me!" sighed O'R, "Them was the days"—as the Troops say."

"Try and forget the past for the moment and tell me something of what you are doing these days. Somehow I seem to be completely out of touch with things. What machines have you got? What work are you doing?"

"You'll find an awful change, Stiff. As a matter of fact, you've come right into the thick of things as we're working awful hard these days, preparing for manœuvres. After tea we've got a good show on with 243."

I remembered that 243 was the other squadron on the aerodrome. "What are you going to do?" I asked.

"Well, we're practising single-seater and two-seater fighting in large formations, between 30-35,000 feet."

"What! 30,000 feet!! Why, what kind of machines have you got?"

"A little different from the things you used to fly, old man. You see, the S.E. and Snipe and B.F. and ga. age has long passed. The machines we have now are called Petrels. Come and see them."

We wandered down to the sheds. I could see that they were camouflaged and was about to ask whether any other change had been made when O'R. remarked "These sheds can be sunk right down till the roofs are on ground level, so they are well protected from attack. And the aerodrome is camouflaged by faking things like trees and hedges on the surface, so it's jolly hard to pick it up unless you know it well if you come over at any height."

We walked into "C" Flight shed. Inside were a number of fairly small biplanes, the streamlining of which was a sight for sore eyes. Apparently the whole machine was made of steel.

"Well, Stiff, what do you think of them?"

"They look pretty good. Tell me something about 'em."

"Well, as you've probably still got the intelligence to see,

there's not a piece of wood in the whole machine. The fuselage is all-steel, and high tensile at that. The engine is the Rolls 'Owl' which develops about 800 h.p. at 2,200 revs. 1 lb. per h.p. It's got a supercharger for high flying. I see a good deal of our work is done over 30,000 feet. photographic and reconn. machines fly anywhere bet 30-40,000 feet."

"Good Lord! Things have changed a bit! Tell me, speed can you get at these heights?"

"Oh, well over 200 with full war load."

"Hum! I should think air fighting must be going to be frightfully complicated!"

"More complicated than you probably imagine, old man. You see, now that the engine-power is available, there's a lot of talk of giving bullet-proof protection to pilots and tanks and engines and that means that we shall have to use machine-guns and use snail-quick-firers. And it is very devil to hit another machine travelling at over 200 m.p.h. Besides, there's the wireless controlled machine. It has come to stay. It can be used for all sorts of jobs, and you attack one they try to ram you. As they're so darn fast you often have to put up a smoke screen to get away."

"Strikes me the air will be an unhealthy place in the near future."

"It will, but we all wear parachutes these days. And as a matter of fact the ground will be fairly hot too, for low-flying machines are bullet-proof and do about 250 m.p.h. all out."

"Gee! But you've so taken my breath away with those speeds you've been talking about that I quite forgot to ask you how slowly those machines can fly."

"About 50-60 m.p.h. You see they are all fitted with flaps, and they land at about 30 m.p.h., so even a Grand Captain can't hurt himself much in a dud landing."

"Pretty useful, O'R. Tell me, how do we compare with other nations in this kind of show. Are we keeping ahead of them?"

"I think so, but it's hard to say. After the War we were frightfully behind-hand, but, thank God, we woke up and a little imagination is now used in controlling our destiny."

"What we realise we have to do is to train ourselves to fight as the next First Class War will have to be fought, not be content with keeping an obsolete outfit and practising 1918 methods. It's a hard job keeping our men and materiel up-to-date, but by encouraging our designers and spending the money they give us in the Estimates, we've managed to come as far as we have, and I fancy it will be difficult for any Foreign Power to get ahead."

"Of course, the work involved is enormous. It's not only having the machines unless you have the men, the guns, the cameras, the bombs and bomb-sights, the latest gadgets in every branch of wireless, and above all the organisation with a capital O. Moreover, when the petrol engine is inevitably discarded we must be the first to have the new type of motive power and that's what the Air Ministry is doing its best to make sure of."

"You've given me a lot to think about, O'R. Suppose you go and digest it over a drink."

"Right Oh! Old son. Let's run back to the Mess and we'll phone 243 and arrange for you to go up in one of the machines a few times this week so as to accustom you to high flying."

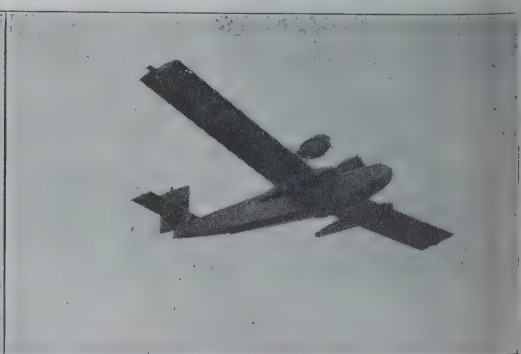
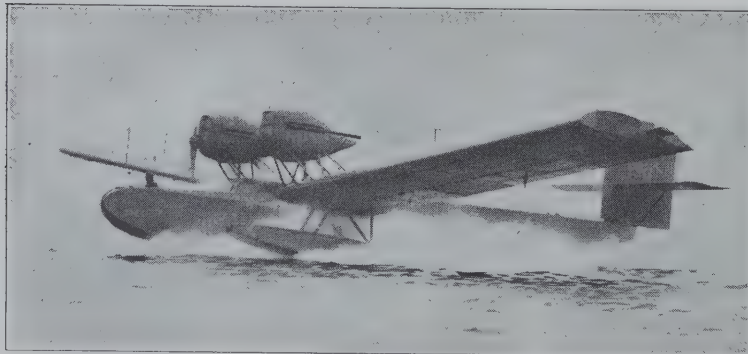
"Not to mention using oxygen, my lad. I've never needed any in my life!"

Leaving the sheds we began to walk back to the Mess. Things grew blurred. I heard the roar of many engines as I found myself lying in bed. Dashing to the window I looked up to see two beautiful formations of Snipe and Bristol Fighters floating slowly by.

"Ah! I'd like to see some Petrels come and break up those formations, and—but—my God!"

It was only a dream. THIS is our Royal Air Force.

ERHU FUGACES



The Rohrbach R.O.II Duralumin Seaplane (2 Rolls-Royce Eagle IX engines). Left, taking-off, and right, in the air.

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Machines fitted with

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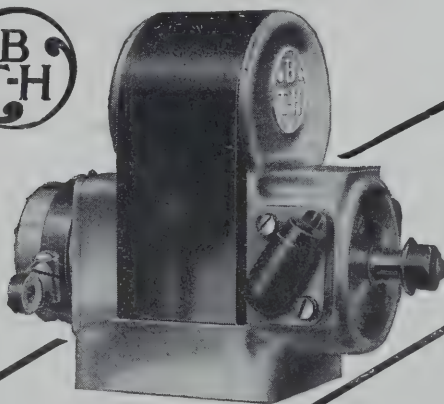
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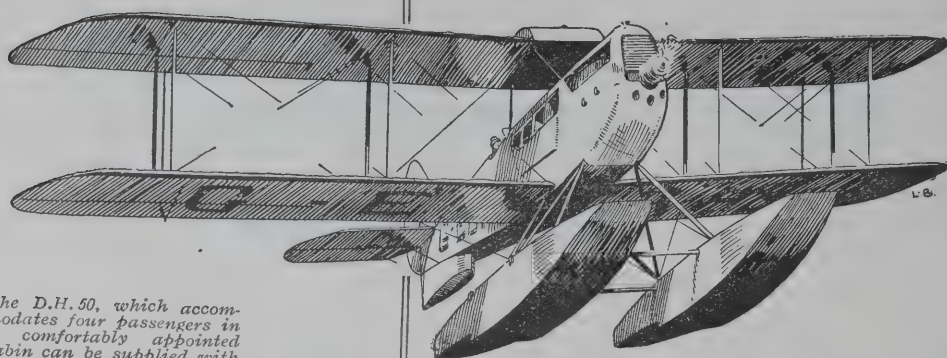
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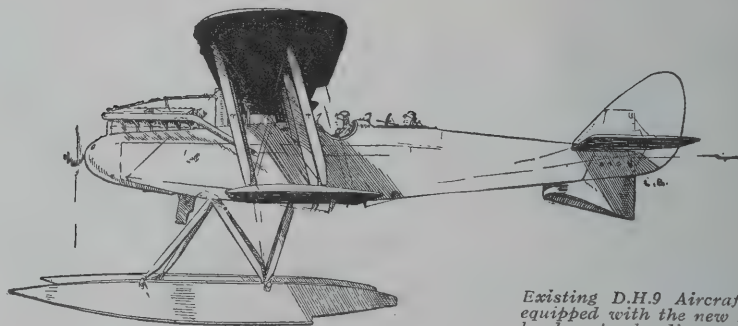
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Existing D.H. 9 Aircraft can be equipped with the new De Havilland water landing gear. Particulars and cost of the conversion will be supplied on request.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

SECOND THOUGHTS ON LIGHT AEROPLANES.

Now that this year's Light Aeroplane Competitions are all over, one can relapse into thinking about the future of this type of craft and into discovering at least some of the things other people are thinking about them. Major Buchanan's paper on the competitions and the discussion which followed at the Royal Aeronautical Society provide a good deal of information in this respect.

Generally speaking, there are two main schools of thought on the subject. Of these one is that the light aeroplane is merely an attempt to return to the state of affairs of twelve or thirteen years ago when flying had to be attempted with less powerfully under-powered machines. And as under-powered machines must inevitably be dangerous and of little practical use according to this view, the light aeroplane movement might be regarded as a futile waste of time. And generally the other school holds that the present machines are far too small to survive continued service.

The other school of thought regards the light aeroplane as a thoroughly sound and useful training and sporting type of machine provided only that all this silly nonsense about retarding them to 1,500 c.c. or so engines is washed out and they are fitted with a respectable multi-cylinder engine of 20, 30, 40, 50, 60, or 100 h.p.

Between these two schools there are to be found a relatively small number of people who are unwilling to accept either of these views. It is rather noticeable that the majority do not subscribe to either extreme of opinion are to be found amongst those who have some practical experience of flying, or of designing and constructing such craft, who therefore should know what they are talking about. Under the circumstances it seems to be worth while to consider the objections which are raised against the present type of aeroplane by the two schools already mentioned and see what extent there is a sound answer to them.

WHEN IS A MACHINE UNDER-POWERED?

The question as to whether a given aeroplane is under-powered or not is a somewhat more complex one than is usually supposed—even by some of those who might be expected to understand the subject. Lack of an adequate reserve of power may lead to danger either in the case of taking off or in the course of flying.

In the first case a machine may be said to lack power if it is unable to clear the kind of hedge or fence that is likely to be found around a normal field in the country. If the machine is to be used, with the starting run in such a normal field will provide.

That is to say that subject to local conditions the power requirements for safe getting off may be defined by a minimum height to be attained at the end of a given distance from the starting point. The authorities responsible for the results at the recent two-seater competition evidently considered that a machine which cleared a 20-ft. obstacle in 450 yds. was not utterly unsafe. The best results achieved by competing machines was that of clearing the 20-ft. obstacle in less than half the maximum permitted distance.

GETTING-OFF PROBLEMS.

Now it is fairly safe to say that very few normal aeroplanes of the commercial, bomber, or training types, could clear a 20-ft. obstacle in this distance. In this connection it is to be recollected that in a test of this kind two quite different sets of conditions are involved. The total distance covered before clearing a given obstacle is determined first by the distance which the machine must run on the ground to reach its flying speed, and in the second place by the angle at which it can climb after it has gained flying speed. The first distance is determined jointly by the weight per h.p. of the machine and the rolling friction of its undercarriage, which together settle the acceleration, and by its minimum flying speed.

The second is determined by the climbing rate and by the minimum air speed.

The weight per h.p. of the light aeroplanes at Lympne was low and most of them were fitted with small wheels giving a large ground friction. Add to this the fact that they were fitted with small-diameter, high-speed airscrews giving a poor overall efficiency at low speeds of travel and it is not surprising to find that the acceleration on the ground was actually most of the machines were still on the ground long after they had cleared the obstacle itself, and the height that they had cleared with an additional ten yards of run would have been increased to a surprising extent.

SIZE AND APPARENT SLUGGISHNESS.

The impression which was undoubtedly given to many spectators that the machines were sluggish in getting off, is to a large extent due to the relatively great length of ground covered against the short distance covered in the air, and also to the sort of scale effect caused by the small size of the machines themselves. If two machines, one five feet in overall height and the other 15 feet in overall height, both require the same distance in which to take off the ground, the

smaller one will appear to be much the more sluggish of the two because one instinctively tends to judge speeds and distances in terms of dimensions of the machine involved. And for some curious reason in the case of aeroplanes on the ground the overall height which is so lacking in most light aeroplanes, seems to be the dimension which influences one's judgment most. And, of course, the time taken by a slow machine to cover a given distance is long and this in itself gives an impression of sluggishness.

On the whole the good light aeroplanes of this year did exceedingly well in the getting-off tests, and in particular their initial climbing angle was astonishingly good. It would not be difficult to improve their get-off, particularly the ground run, by fitting larger landing wheels—which would have but a small effect on the performance—and also if airscrews running at lower speeds could be fitted. But as they stand they will get out of fields that would completely defeat the great majority of standard aeroplanes.

The actual angle of climb which is possible on these machines is good—quite surprisingly so—and if the ground run can be a little reduced, their get-off performance, as measured by the space required for the purpose, will be distinctly better than that of any other type of aeroplane now existing. Thus it may be held as a fact that with the engines actually used at Lympne developing the power actually developed, the two-seater light aeroplane was not under-powered so far as getting off is concerned.

POWER AND SAFETY IN FLIGHT.

In actual flight the question as to whether a given machine is under-powered or not rests on somewhat different considerations. Really it may be said that it boils down to the question of how far off the stalling angle the machine can be flown. Essentially danger from lack of power when in flight is danger of reaching the stall, and it can be said definitely that this statement of the case is in no way modified by the question of whether a particular machine can be controlled beyond the stall or not. Quite independently of control, the stalling speed is the minimum speed at which a machine can remain in the air in steady motion. If the stall is passed the speed must increase, and the speed of descent will increase even more rapidly than the air speed.

An under-powered machine is one that cannot fly at a speed greatly removed from stalling speed, and whenever this is the case the machine has necessarily a limited ceiling, and a limited climb rate. In any machine, however ample the power reserve in normal flight, sharp turns or other vigorous manoeuvres may absorb the whole surplus and bring the machine to a close approach to the stall.

Such manoeuvres in normal civil flying are only made necessary by obstacles on the earth's surface, and the machine which cannot fly quickly to a safe height clear of such ground obstacles is the machine which is most likely to be forced to make them. And it is precisely this machine which is the most easily stalled. As it is only when one is close to the ground that stalling is really dangerous, the question so far as climb is concerned becomes very much like that of getting off, for of two machines the one which can clear a given obstacle in the shortest distance is the one which will least often be forced to execute sharp turns at a small height. It will be seen that this is again a question rather of the angle of climb than of the actual speed of climb, and that a machine which climbs slowly at a slow forward speed is as safe as one which climbs rapidly at a correspondingly increased air speed.

Unfortunately there were no tests at Lympne which indicated with any sort of accuracy the continuous climbing gradient which could be attained by the more successful of the two-seaters present. There were certainly no demonstrations of the fact that certain machines had not a gradient of climb sufficient to take them comfortably out of Lympne Aerodrome under the prevailing conditions. It is however scarcely fair to argue from one or two cases of obvious weakness in this respect that all light aeroplanes are similarly affected.

WHERE STILL-AIR TESTS MAY BE MISLEADING.

It has to be remembered however that under certain circumstances to judge of a machine's safety and sufficiency of reserve power by its climbing gradient in still air may be misleading. A machine which climbs 300 ft. per minute at 30 m.p.h. has the same climbing gradient as one which climbs 600 ft. per minute at 60 m.p.h. But if both are set to climb up a slope down which the wind is blowing the climbing rate of both will be reduced by the same amount as a result of the downward velocity of the air in which they have to fly. To go to extremes, if the down current has a vertical velocity of 300 ft. per minute the slower machine cannot climb at all, whereas the faster machine can still climb 300 ft. per minute.

The difficulty encountered by certain machines at Lympne in getting clear of the aerodrome was undoubtedly caused

by the fact that in a southerly wind the aerodrome is in the down-swirl which follows the well known up-current over the cliff to the south of the aerodrome. The crash of the Westland monoplane on the first day of the meeting was similarly caused by the fact that in the lee of the ridge N.E. of Lympne it ran into a down-current of higher vertical velocity than its best climb.

A WEAKNESS OF EFFICIENT AEROPLANES.

This is a real weakness to which the light aeroplane is common with all other really efficient aeroplanes is subject. As an approximation which is very fairly close to the truth if two machines have the same absolute ceiling they will be equally safe to fly so far as safety is a matter of power reserve. But with equal ceilings the climbing rate in feet per second is inversely proportional to the weight per h.p., that is to say, that if a machine weighing 10 lbs. per h.p. can climb 1,000 ft. per min., then a machine with the same ceiling but weighing 20 lbs. per h.p. will climb only 500 ft. per min., and will therefore be much more at the mercy of down-currents than will the first machine.

On this ground the question of absolute rate of climb has to be taken into account as well as the climbing gradient in determining what is and what is not an adequate reserve of power. It may be said that on this point the best of the Lympne machines showed themselves to be quite safe under the prevailing conditions in this respect.

THE RELATIVITY OF SAFETY.

It has to be remembered too that safety in all the conditions now under consideration is entirely relative. The use of the term prevailing conditions in the previous and other paragraphs has been made advisedly. The amount of reserve power which is necessary to give any defined degree of safety is absolutely determined by the average ground and wind conditions likely to be encountered in the district in which the machine is to be used. If one wished to fly in straight lines over an absolutely flat, uniform surface free from trees, rocks or other obstructions, over which the atmosphere was absolutely stagnant, a machine with no appreciable climb and a ceiling of six inches would be perfectly safe. If one wishes to fly over a country of small fields, high and steep hills, and a violently disturbed atmosphere, a high ceiling and a rapid climb are necessary. And it is only possible therefore to say that a given machine has sufficient reserve power to be safe under a given set of circumstances. And in practice judgment as to the safety of any given machine in any given conditions can only safely be made on the basis of practical experience.

A machine can be said to be safe if practical experience shows that it can be taken-off and landed without risk in any emergency likely to arise over the country in which it is to be used. No aeroplane at present made—or likely to be made—is absolutely safe, but relatively the light aeroplanes at Lympne demonstrated that they were if anything rather safer than the average normal aeroplanes for use over fairly representative English ground.

ENGINE RELIABILITY.

It will be objected here that the question of the reliability of engines has been entirely neglected, and that a machine fitted with an over-run engine cannot be regarded as possessing an adequate reserve of power if the engine is likely at any moment to fail. Actually, however, it is reasonable to treat the question of engine reliability as one separate from that of reserve power. And this not merely on the quite sufficient grounds that the h.p. needed by a given machine for safe flying and the h.p. that can continuously be developed by a given engine are widely separated questions, but also because with a given engine on a given machine it generally makes for safety to be able to take from the engine the maximum possible output even at some considerable risk of engine failure than to limit the engine to an output at which it is practically immune from breakdown. Suppose that in a given light two-seater there is fitted an engine which can develop 35 h.p. with a very considerable risk of failure, but which limited to 30 h.p. can be considered quite reliable. With the 30 h.p. and a full load the machine in still air has a definitely limited get-off performance—say that it will just clear a 20-ft. barrier from 250 yards, touching the stall in the process. The engine at this power is so reliable that one may neglect the risk of the engine failing—but one cannot neglect the risk of an air disturbance calling for increased power to enable flight to be maintained. If the machine meets such a disturbance when practically stalled it will fail to clear the obstacle and the pilot will have no alternative but to fly into it, for the fact that he is already stalled washes out the possibility of any manœuvre likely to be of use.

If however he has available the 5 extra h.p. that the engine can give he will be able to clear the obstacle without ever getting dangerously near the stall—in other words, with reserve speed in hand. Even if the engine fails en-

tirely he has some spare energy available which gives him a chance possibly of zooming the obstacle, possibly of turning and avoiding it, which would not have been present in the first case.

It therefore seems reasonable to treat this question as to whether light aeroplanes are under-powered on the basis of the power actually available quite apart from the question of engine reliability at that power, more particularly as the last question is really the one involved in the opinion as to whether light aeroplanes would be entirely admirable if they had bigger engines. The question as to whether 35 h.p. is enough power for a two-seater light aeroplane is quite separate from the question of whether an 1,100 or a 1,500 c.c. engine can be made to give 35 h.p. with sufficient reliability.

OF THE PERFORMANCE OF LIGHT AEROPLANES.

In so far as concerns the safety of flying which is determined mainly by the getting-off performance, it can safely be said that 35 h.p. is sufficient for the two-seater. Those who hold the contrary view say that the 35-h.p. two-seater can only be made safe in this respect by so limiting its speed that it is of no practical value. This is, it is believed, an idea based largely on a combined failure to realise what is possible with existing light aeroplanes, and on a mistaken idea of the uses to which light aeroplanes may reasonably be put. Nobody who has given the subject any real study imagines that the light aeroplane will be able to undertake regular long-distance services in Northern European weather and ground conditions. Nor do they imagine that a pilot trained to fly such a machine will be able to fly a 160-m.p.h. fighter or a five-ton commercial machine, with safety to himself and to the machine, and to the satisfaction of the insurance companies.

But one is perfectly certain that such machines can be used perfectly satisfactorily for elementary training of pilots—certainly sufficiently so to allow early discrimination between those pupils who will never by any chance become reasonably useful pilots and those who are worthy of continued instruction.

Even with full two-seater loads the best of the existing light aeroplanes with an 1,100 c.c. engine has a performance equal to that of present British standard training machines. As a single seater the performance and the reserve of power of the light aeroplanes is relatively very greatly improved for the weight of one person makes a good deal more difference to a 900-lb. than it does to an 1,800-lb. machine. And as it is more important that a training machine should have an ample reserve of power during a pupil's early solo flights than when he is accompanied by a competent instructor, a light aeroplane compares better with the standard type than full-load performance figures alone would indicate.

(To be continued.)

A Dissolution.

It is announced that the firm of Ogilvie and Partners, Consulting Aeronautical Engineers, of 104, High Holborn, London, W.C., has gone into voluntary liquidation and been wound up as from Oct. 29th.

Col. Alec Ogilvie, Governing Director of the late firm, is setting out on a trip round the World and has made an announcement as to his intentions as to the future, though he has apparently no intention of losing his touch with an interest in, Aeronautical affairs.

Col. W. A. Bristow and Dr. W. H. Watts will continue to act as independent consulting engineers at 104, High Holborn.



Col. Bristow has, as is well known, specialised largely on questions relating to the internal combustion engine and its accessories, and Dr. Watts is known as one of the foremost authorities in the World on airscrews.

Major R. H. Mayo, the remaining director of the firm, has not yet decided upon his future activities.

Col. Ogilvie bought his first Wright biplane in 1908 and since that date has continuously played a prominent part in the development of British Aviation. During the war as Squadron Commander, R.N.A.S., in charge of training at Eastchurch as Senior Technical Officer at the R.N.A.S. Headquarters at Dunkirk, and finally as the head of a very important section of the Technical Department of the War Board and Air Ministry his services to the State were immense value.

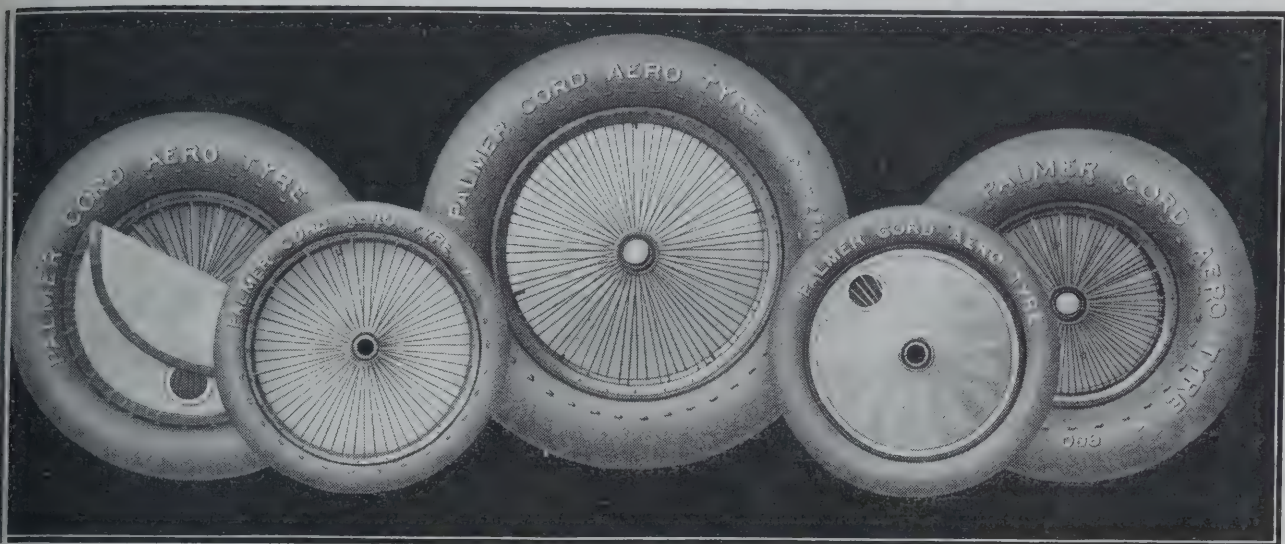
In 1919 he founded with the above-named partners a firm with Dr. A. J. Sutton Pippard the firm of consultants who dissolution has just been announced. During the period the firm's existence it has rendered services to the development of British Civil Aviation such as might have been expected from the previous record of its founder and his associates.

It can only be hoped that in the very near future the financial state of Aeronautical business will become sufficiently flourishing to justify Col. Ogilvie in returning to an active participation in its affairs and to reward his efforts in an adequate way.

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00×60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	"	"	"	"	"
50×60	30	89.	31.75	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	149	185.	55.	Central
75×60	21	160.	28.	Central	750×125	77	178.	44.45	132/46	"	155	220.	66.67	Central
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	"	166	185.	55.	125/60
"	111	150.	38.09	104/46	"	95	185.	55.	Central	900×230	107	185.	55.	Central
00×75	21	160.	28.	Central	"	96	178.	55.	132/46	"	108	185.	55.	125/60
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	128	220.	66.67	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	137	250.	80.	Central
00×75	78	178.	44.45	132/46	800×150	82	185.	55.	135/50	"	202	185.	60.32	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	1100×220	134	220.	66.67	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	"	136	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	1250×250	133	250.	80.	Central
0×100	77	178.	44.45	132/46	1000×150	131	220.	66.67	Central	"	154	304.8	101.6	Central
"	92	185.	55.	135/50	"	150	185.	55.	Central	1500×300	115	304.8	101.6	Central
"	95	185.	55.	Central	"	167	185.	55.	125/60	"	126	304.8	152.4	Central
					"	174	250.	80.	Central	1750×300	139	400.	152.4	Central

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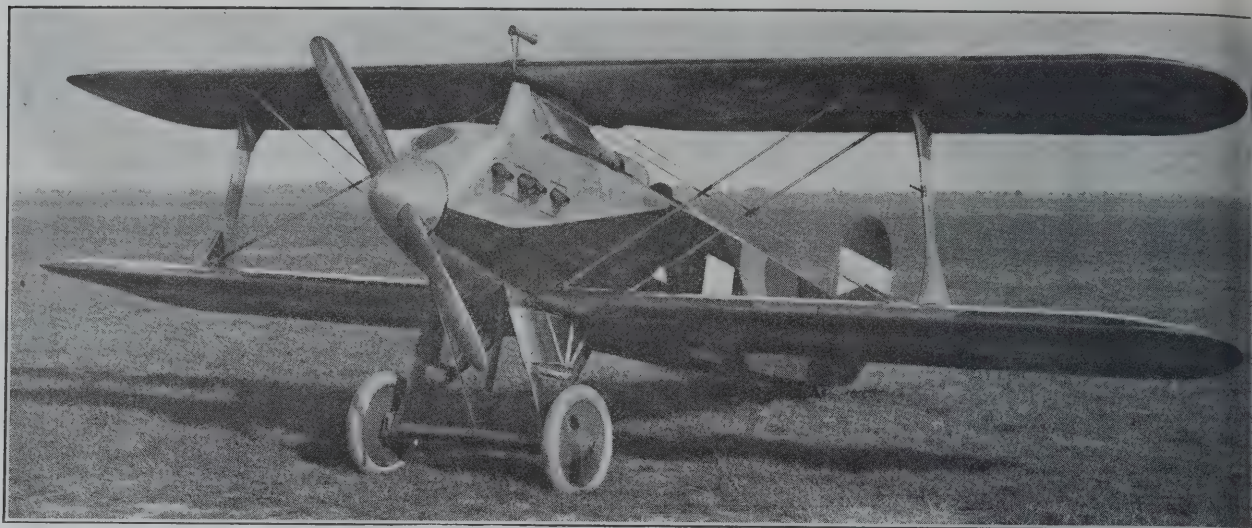
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(240)

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

TWO NEW CZECHO-SLOVAK PURSUIT MACHINES.



The Avia B.H.17 Single-seater (300 h.p. Hispano-Suiza Engine).

The firm of Milos Bondy, of Prague, constructors of the well-known Avia aircraft, have recently tested two single-seater pursuit machines known as the Avia B.H.17 and Avia B.H.19.

Both these machines were exhibited at the Prague Aero Show this year, and both of them created considerable interest owing to the high performance claimed by them, together with the cleanliness of their design and the excellent workmanship embodied in them, this being particularly noticeable in the case of the B.H.17, which was shown both in skeleton and completely covered.

THE AVIA B.H.17.

The Avia B.H.17 was designed at the request of the Czechoslovak Air Force in 1923, and the present model is the result of many tests on two experimental machines both fitted with the 300-h.p. Hispano-Suiza engine. One of the experimental machines possessed a very good all-round performance and this machine after one or two minor modifications is now being produced in series for the military authorities.

In general arrangement the B.H.17 is a normal tractor biplane. The machine is of all-wood construction, three-ply playing an important part therein. The wings are semi-thick and are built up of two standard box-spars, ribs with three-ply webs with ply-wood covering extending from the leading edge to the rear main spar. The whole wing is then covered with fabric. No internal bracing is used owing to the rigidity produced by the ply-wood covering. Ailerons

of wooden construction are fitted to the bottom plane and operated by push-rods carried inside the wing.

The top plane which is in one piece is mounted on a tub, cabane wherein are situated the oil and water tanks, the whole being cowled in. The bottom planes are attached to the side of the fuselage by pin-joints. Interplane struts of I form are mounted one on either side of the fuselage, the wings are braced by two pairs of lift and anti-lift wires disposed in two nearly parallel planes.

The fuselage is built up of four longerons and the upper cross bulkheads, the whole being ply-wood covered, thus eliminating bracing wires.

The engine, a 300 h.p. Hispano-Suiza, is completely covered in and radiators of Avia design are mounted between the undercarriage legs. The main petrol tanks are mounted behind a fire-proof bulkhead, and the petrol is pumped by a Weymann exhaustor into a gravity tank in the top plane whence it flows direct to the engine. The pilot's cockpit is very roomy and is arranged to carry a parachute.

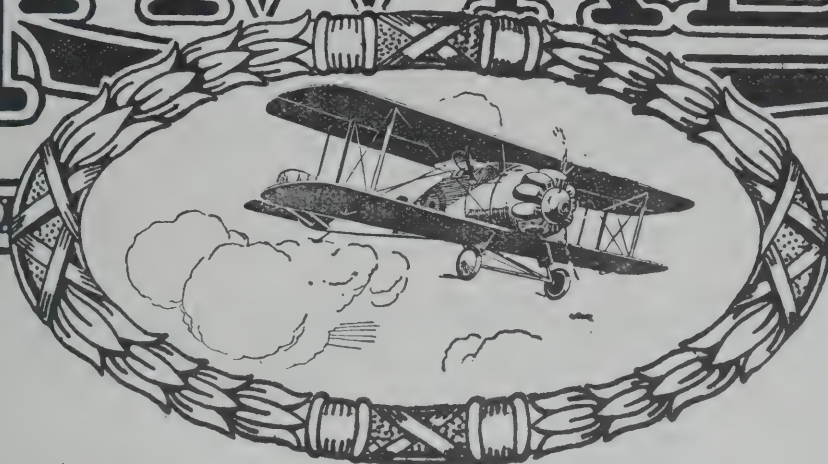
The tail unit consists of a cantilever tail plane, unbalanced elevators and a balanced rudder. All are of fabric-covered wooden construction. The tail plane is clamped by two bolts in an horizontal slot in the fuselage and is easily detachable.

The undercarriage consists of two wooden Vees braced transversely by a steel tube Vee. The divided axle is sprung on rubber chord and lies in an aerofoil-shaped fairing. The tail skid is a leaf spring.



The Avia B.H.19 Single-seater (300 h.p. Hispano-Suiza Engine).

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

SPECIFICATION OF THE AVIA B.H.17.

Span (top plane)	8.73 m. (29.0 feet)
Span (bottom plane)	8.86 m. (29.4 feet)
Length	5.73 m. (26.5 feet)
Height	2.63 m. (8.9 feet)
Area	21.08 m ² . (232 feet ²)
Weight (empty)	830 kgs. (1,830 lbs.)
Useful load	303 kgs. (670 lbs.)
Weight (loaded)	1,133 kgs. (2,500 lbs.)
Max. speed	240 km.p.h. (149 m.p.h.)
Cruising speed	220 km.p.h. (137 m.p.h.)
Climb	5,000 m. in 14 mins. (16,500 feet)
Ceiling	8,000 m. (26,500 feet)

THE AVIA B.H.19.

The Avia B.H.19 is a single-seater pursuit machine of the low-wing type and fitted with the 300 h.p. Hispano-Suiza engine. The type of machine was chosen by the Military Air Force on account of the excellent view obtainable, ease of dismantling and assembling, favourably high aerodynamical efficiency and splendid flying qualities.

The construction follows general Avia practice and is similar to the B.H.17.

The wings are thickened up at a point roughly a third of the span from the fuselage and from this point they are braced to the top longeron of the fuselage by two parallel tube struts. Each wing is attached to the bottom of the fuselage by two universal joints and the bracing struts are at-

tached by means of pin-joints. Tests were carried out on wing until a factor of safety of seventeen was reached without rupture.

The ailerons are hinged to a false spar and are operated by push rods.

The fuselage, tail-unit and undercarriage are practically same as those fitted to the B.H.17.

The engine is completely cowled in although all vital parts are easily accessible. The honeycomb radiator situated under the fuselage is retractable by means of a hand-wheel from the cockpit. The main petrol tank is of welded aluminium, the petrol is fed direct to the carburetors by two A.M. pumps. The oil tank is situated above the petrol tank and the radiator is mounted alongside the main radiator.

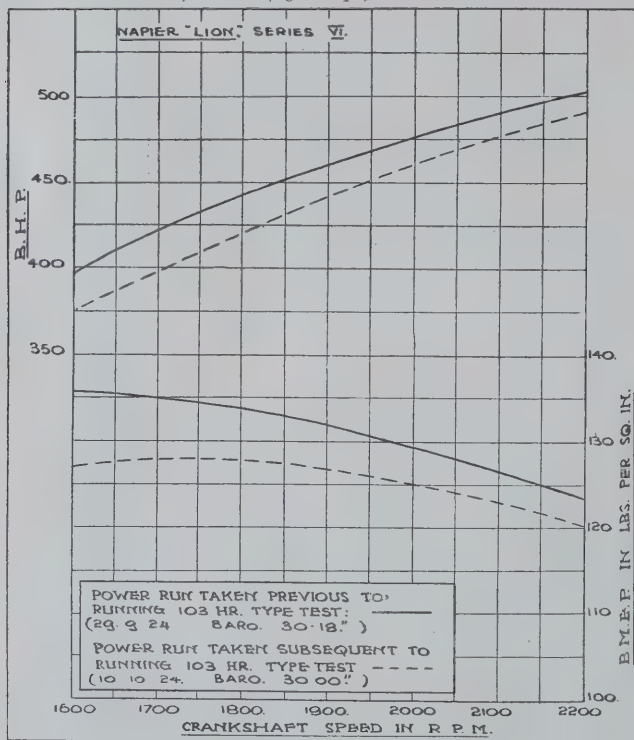
A machine of this type is now being fitted with a Bristol Jupiter engine, licence for the construction of which has been obtained by the Laurin-Klement Co.

SPECIFICATION OF THE AVIA B.H.19.

Span	10.8 m.	Weight per h.p. ...	3.8 lbs.
Length	7.37 m.	Max. speed	250 km.p.h.
Height	2.6 m.	Min. speed	90 km.p.h.
Area	18.30 m ² .	Climb to 3,000 m. ...	7 mins.
Weight (empty) ...	780 kgs.	Climb to 5,000 m. ...	15 mins.
Useful load	377 kgs.	Ceiling	8,500 m.
Weight (loaded) ...	1,157 kgs.		
Weight per sq. in. ...	63 kgs.		

Another Napier Type Test.

Up to date the 450 h.p. Napier Lion has passed no fewer than ten of the Air Ministry 50-hour type tests with complete success. Recently one of the latest type of this engine has been subjected to a further test of a total of no less than 104 hours. The first item in the test was the taking of a power curve, followed by ten consecutive runs of ten hours each at between 420 and 425 b.h.p., the hundredth hour being



at 470 b.h.p. Then after ten minutes at 500 r.p.m. the engine was run up to 2,310 r.p.m. and run for one hour at this speed and approximately 350 b.h.p. This was followed by one hour at full throttle and 2,200 r.p.m. giving 500 h.p., and finally a second power curve was taken.

At the end of this test the engine was still running in a thoroughly satisfactory way, although no part of the engine had been changed or even adjusted during the test.

A New Avro Aerodrome.

It is announced that the firm of A. V. Roe and Co., Ltd., have purchased a tract of land of 163 acres in extent at Woodford, in Cheshire, for use as an aerodrome. The Alexandra Park Aerodrome at Manchester having been closed down, the firm have been able to secure at Woodford a very much and considerably greater area than was available at the old aerodrome, which in addition is outside the Manchester smoke ring, and is well clear of surrounding buildings.

The three largest sheds at Alexandra Park have been bought by A. V. Roe and Co., Ltd., and will be removed to Woodford. Flying is expected to begin at the new aerodrome within about two months, and it is hoped that the aerodrome will be completely equipped in twelve months.

Woodford is within half an hour of Manchester by car and is two miles from Wilmslow and five miles from Stockport stations—both on main lines.

Good Delivery.

It has already been noted that the Italian Dornier Co., Pisa have fulfilled an order of Dornier Wal monoplane flying-boats (two 360-h.p. Rolls-Royce engines) for the Spanish Government.

Two of these machines were delivered from Pisa to Melilla in Northern Africa, via San Remo, Barcelona, Carthage and Cape de Gata by Herr Richard Wagner in two successive non-stop flights of 11 hrs. and 10½ hrs. duration respectively, for the 690 miles.

The two Wals carried, in addition to the pilot, M. Schumacher, manager of the Pisa Works, a mechanic and 2,300 kilograms load, and both the flights were carried out within a few nights.

A very fine performance for the aircraft, the engine, and the pilot.

New Technical Literature.

Rijks-Studiedienst voor de Luchtvaart Amsterdam:

Report A 33.—Experiments on the Pressure Distribution on the Fuselage of an Aeroplane Model.

Report A 58.—Nomogram for the Correction of Incidence Drag of Model Aerofoils tested in an Air Stream of Fixed Dimensions.

Report A 77.—Experiments on the Pressure-drop in an Air Current caused by Metal Gauze.

Note.—The three reports from the Amsterdam Aeronautical Laboratory above mentioned are published in Dutch, but are also provided with a summary printed in Dutch, French, English and German which enable those who can read any of these languages to extract the essence of the report and to understand the tabular results.

The Institution of Aeronautical Engineers.

At a meeting of the Institution of Aeronautical Engineers held on Friday, Nov. 7, at the Engineers' Club, 6.30 p.m., Col. Bala will read a paper on Steel versus Lighter Alloys.

New Companies.

AIR SURVEY CO.—The Air Survey Company, Ltd., was registered as a private company on Oct. 27, with a nominal capital of £15,000 in £1 shares, to acquire all or part of the business carried on by R. C. Kemp at Rangoon and elsewhere, and all or part of the assets and liabilities thereof, and to carry on in any part of the world the business of surveyors, explorers, prospectors, photographers, map-makers, draughtsmen, by means of aircraft of all kinds, conductors and transporters of scientific, industrial, and other expeditions and investigations for which aerial transport may be utilised, etc. The subscribers (each with one share) are: S. H. Barnes, 40, Bellingham Road, Southend, Catford, S.E. solicitor; W. Westaway, 23, Bessborough Gardens, Westminster, S.W.1, clerk.

The subscribers are to appoint the first directors. Quotation £100. Solicitors: Francis and Johnson, 62, London Wall, E.C.2. No notice of situation of registered office was filed at time of registration. File number 201,279.



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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 15; Tuesday, 14; Wednesday, 13; Thursday, 12; Friday, 11; Saturday, 12; Sunday, 5.

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London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 45, passengers 200, freight 6 tons.

AIR UNION:

Paris—London: Machines 20, passengers 110, freight 10 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 10, passengers 27.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 7, passengers 9.

Total number of trips by British machines: 45, carrying 200 passengers. Foreign machines: 37, carrying 146 passengers.

Comparative Figures:

For week ending Nov. 2:

Machines, 82; Passengers, 346; Crews, 102; Total personnel, 448.

Corresponding week, 1923:

Machines, 64; Passengers, 142; Crews, 95; Total personnel, 237.

Corresponding week, 1922:

Machines, 52; Passengers, 210; Crews, 78; Total personnel, 288.

Corresponding week, 1921:

Machines, 43; Passengers, 112; Crews, 59; Total personnel, 171.

Corresponding week, 1920:

Machines, 64; Passengers, 128; Crews, 85; Total personnel, 213.

Croydon Notes.

The weather conditions are now becoming bad on most of the routes, nevertheless Imperial Airways, Ltd., are keeping up a high percentage of regularity.

A quick flight from London to Cologne was made by Mr. Barnard on a Handley Page W.8b (two Rolls-Royce) on Sunday. He left Croydon at 09.42 hrs. with six passengers and arrived at Cologne at 12.30 hrs. still carrying the same six passengers. This must be a record for a twin-engined machine on this route. But how it must have thrown its tail about in the gale! Incidentally, why do the daily papers insist on calling a Handley Page W.8b a "Rolls-Royce W.8b"?

A chauffeur was fined 40s. at Croydon County Police Court on Saturday for attempting to bring a dog into the country by air. The Air Union, whose machine brought the offending dog, were also summoned, but the summons was dismissed. The dog has since died, it is alleged, of a broken heart.

Mr. Perry, over at the Aircraft Disposal Company, has been testing a Bristol Fighter. Engine experiments are still progressing with much satisfaction.

A kite-balloon is now being operated at Kenley after dark in order to test from the air the various lights at Croydon Aerodrome. The balloon can of course ascend in a fog or mist and so the effect of these lights under somewhat abnormal conditions can be ascertained.

An International Air Traffic Conference.

According to the *Berlingske Tidende*, the Danish Foreign Office has sent invitations to Great Britain, France, Germany, Belgium, Finland, Holland, Norway and Sweden, to attend an international Air Traffic Conference to be held in Copenhagen on Dec. 2-4, to discuss the extension and improvement of the regular air routes of Northern Europe. Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation, will be one of the British delegates.

One of the questions to be discussed will be the consideration of methods to connect London and Paris with the air lines starting from Copenhagen, together with the opening up of the direct services between London and Prague.

Canadian Fishery Protection.

In the three months of the salmon-fishing season in British Columbia, from July to September, two flying-boats employed by the Dominion Government on fishery patrol covered more than 10,000 miles in the course of their work.

During the fishing season thousands of small boats work on the fishing grounds. Licences issued to fishermen are limited to certain areas and it is in keeping watch on the movement of the boats and protecting the prohibited areas that the air patrol has proved invaluable.

In addition to fishery protection the two flying-boats have done a considerable amount of air survey work, including the discovering and photographing of hundreds of small lakes near the coast which are shown on no existing maps of British Columbia.

A New Cup for Competition in France.

According to *Les Ailes*, a prominent New York citizen, Clifford D. Harmon has presented a cup, to be called the Trophée de l'Escadrille Lafayette, for competition in France in memory of the Lafayette Escadrille of American volunteers who served in the French Air Service from 1914 up to the entry of the United States in the War 1914-18. The trophy valued at 20,000 francs, will carry with it five prizes of 10,000 francs and the organisation of the competitions to take place annually for five years has been placed in the hands of the Vieilles Tiges, an association of French pioneer aviators.

It is also reported that it is the intention of Mr. Harmon to present similar trophies for competition in the United States, Great Britain, Italy and Belgium; and that the winners of these individual trophies shall compete together for the International Cup.

The donor of the trophy holds the American Pilot's Certificate No. 6, and has also put up an early fire-balloon record.

The Coppa d'Italia.

Through the initiative of the Aero Club of Italy and under the auspices of the Commissariat of Aeronautics, the Coppa d'Italia was held at Rome on Oct. 10-12, 1924.

The competition was for light school aeroplanes of 40-90 h.p. Under the rules of the contest the competition was open to tractor fuselage monoplanes or biplanes with dual control and showing a maximum speed of 62.5 m.p.h., a minimum speed of under 40 m.p.h. and carrying a useful load, including pilot, but excluding fuel, of 390 lbs.

The race had to be flown over a closed circuit of 188 (300 km.) without landings or refuelling, and the winner decided on a formula based on the average speed attained, the useful load carried, and the fuel consumption of the engine.

The trophy, valued at 30,000 lire, and prize-money totaling a value of 200,000 lire, was given by the Commissariat of Aeronautics.

There were eight entries for the competition, as follows: One Macchi 20 (45 h.p. Anzani engine), one Gabardini monoplane (40 h.p. Gabardini engine), one Officine Montor biplane, type R.7 (60 h.p. Combi engine), one Udet monoplane (55 h.p. Siemens engine), one Junkers T.19 monoplane (55 h.p. Siemens engine), one Junkers T.19 monoplane (75 h.p. Siemens engine), one Albatros L.30 monoplane (75 Mercedes engine), and one Caudron C.127 biplane (80 Gnome engine).

Owing to the withdrawal of the Gabardini, the Officine Montor and the Albatros entries, only five machines presented themselves for the elimination tests. Of these, the Junkers T.19 (55 h.p. Siemens engine) and the Udet failed to pass the minimum speed test and were disqualified but were allowed to fly the course *hors concours*.

The race was run on Oct. 12 over six circuits of the course Centocelle—Ciampino—Montecelio—Centocelle.

Signor di Briganti, on the Macchi 20, won the Cup with 150,000 lire prize-money, with 1,401 points, M. Béchelet on the Caudron finishing second with 922 points, winning 50,000 lire.

Both Junkers monoplanes retired in the fifth circuit through shortage of fuel.

Herr Udet completed the course and totalled 1,480 points but owing to his disqualification in the elimination tests, he was only be classed as the moral winner.

Aeronautical Restoration in Greece.

According to information published in the Hellenic press, Commander Gonatas, Chief of the Greek Air Services, has drawn up a scheme for the restoration of the Air Service. Should this scheme, which is now being considered by the Council of Admirals, be approved, the serving officers of the Military Air Service will be sent to England for a course of instruction. The cadets of the Naval Air Service will undergo a complete course of instruction in the western countries of Europe. The first batch of officers of both Services will leave Greece in January, 1925. These officers on graduation will form the nucleus for the National Aviation School which is proposed to form.

The Aircraft Factory at New Phalerum, on the outskirts of Athens, will be handed over to a foreign company which is in a position to produce 150 aircraft per annum. It is proposed to send a mission abroad in order to study aeronautical conditions.

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THE GLOBE TROTTERS.

THE ARGENTINE EXPEDITION.

Major Zanni, the Argentine military aviator who was attempting to fly round the World and who had reach Tokyo, reported to have abandoned his attempt following on the receipt of information that the ports of Petropavlosk and Ushishir were icebound and that the possibility of securing a ship to patrol the waters of the Northern Pacific was in question.

Major Zanni has suggested to his Committee in Buenos Aires that he should either remain in Japan in order to continue his flight in the spring, that he should proceed to Europe and from there fly the Atlantic or that he should attempt to fly to Buenos Aires via New York. It will be remembered that Major Zanni left Amsterdam on July 26, flying a Fokker C.IV (450 h.p. Napier engine), and after a fine flight to Hanoi he was held up for a considerable time there owing to his machine overturning in attempting to take off from an aerodrome that had become waterlogged owing to the heavy rains. This delay was responsible for the abandonment of the flight.

THE HOLLAND-BATAVIA FLIGHT.

The three Dutch aviators, Messrs. Van der Hoop, Van derden Poelman, and Van den Broeke, who, in attempting to fly from Amsterdam to the Dutch East Indies on a Fokker C.II monoplane, 360 h.p. Rolls-Royce engine, had a forced landing at Phillipopolis, have now repaired the damaged aircraft and on Nov. 2 they were reported to have departed at Constantinople.

On Nov. 3 they left Constantinople for Angora and intended to continue as far as Aleppo on that day.

PERSONAL NOTICES.

MARRIAGE.

COLLINS-ZELASKO.—On Oct. 14, at St. Peter's Church, Croydon, Surrey, Filt. Lt. H. J. Collins, R.A.F., youngest son of the late Mr. W. H. Collins, King's Dragoon Guards, and Miss Lucy Dorothea Zelasko, second daughter of the late Mr. C. J. Zelasko and Mrs. Zelasko, of the Croft Rectory.

BIRTHS.

KIDD.—On Oct. 29, at 24a, Mornington Avenue, West Kensington, London, W.8, to Dorothy, wife of Capt. M. G. Kiddy—a son.
WHINNEY.—On Oct. 31, at 15, Campden Hill Court, W.8, to Edna, wife of E. G. Whinney, R.A.F.—a son.

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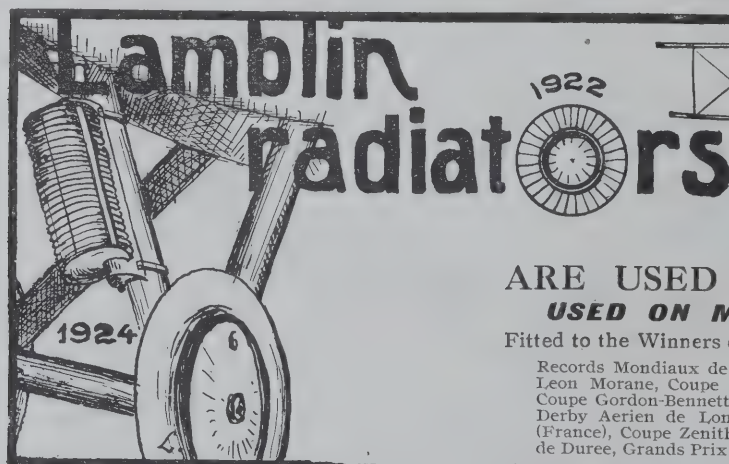
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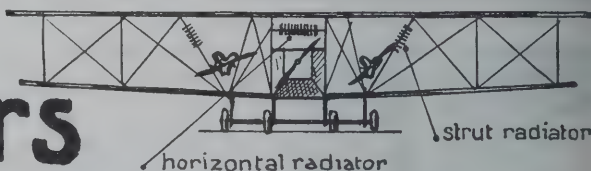
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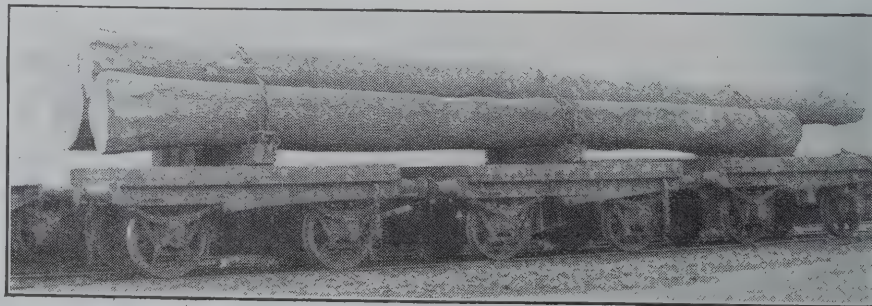
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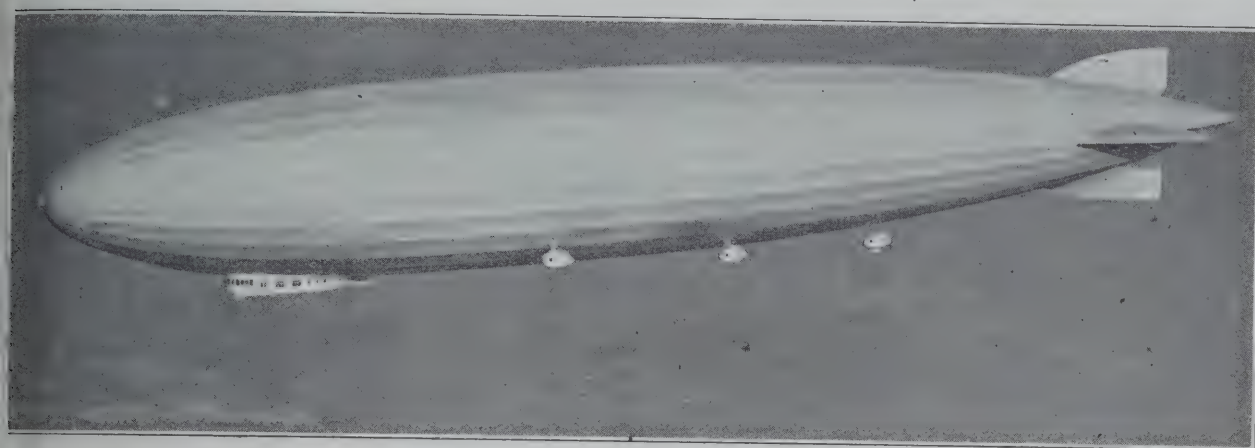
Edited by
C. G. Grey

Vol. XXVII. No. 20.

SIXPENCE WEEKLY.

[Registered at the G.P.O.
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"THE LINER SHE'S A LADY AND IF A WAR SHOULD COME..."



THE LAST OF A GREAT LINE?—Here is seen the latest Zeppelin airship Z.R.III arriving at Lakehurst, New Jersey. Unless some action is taken shortly the great Zeppelin Works at Friedrichshafen, where the Z.R.III was the last ship built, are to be dismantled and the staff of airship engineers will be dispersed, which would be a loss to the entire World. As the first airship to go and settle in the U.S.A. surely a good name for her would be "The Mayflower."

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The Standard AVRO 504K, Mark II, carries pilot and one pupil. It can, however, be adapted, as a small commercial machine, to carry pilot and two passengers if required. It should be noted that the majority of the parts of the 504K and 504K, Mark II, are interchangeable.

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AVIATION IN THE NEW CABINET.

Whatever may be the political views of those concerned in aeronautics in this country people of all political opinions must be glad to see so many good friends of aviation in the Cabinet.

The appointment of Sir Samuel Hoare to the Air Ministry will give universal satisfaction. Of all our Air Ministers he has done more sound and valuable work than has Sir Samuel. He is not given to violent enthusiasms but he is a man of solid faith, a psychological component which he himself owes to his County Cork Quaker ancestors. He is given to brilliant oratory but his speeches have a convincing quality which is far better. And when he turns a case it is one which remains in the memory, as for example the historical saying that the work of the Royal Air Force on the frontiers of the Empire is "Control without occupation."

On behalf of the aeronautical community one tenders to Sir Samuel the welcome which one extends to a good friend who has been having a deserved holiday. The rest can only have proved his capacity.

Mr. Winston Churchill's appointment to the Cabinet is of historical moment. He is one of the few really great men in this country. Everybody knows his faults, and probably knows them himself better than anybody else does, but as he grows older his virtues are outgrowing his faults and now he is in the happy position of not having to earn his living he can devote his outstanding intelligence solely to the affairs of the Nation.

The people of England must never forget that we owe to Mr. Winston Churchill's policy at the Admiralty before and early in the War 1914-18 the salvation of the Aircraft Industry and the production of the new types of aeroplanes which saved the Army's air force when the official policy of the War Office had nearly brought disaster upon it.

It should also be remembered that Mr. Churchill's father, Lord Randolph Churchill, was admittedly one of the best Chancellors of the Exchequer whom this country has ever had despite, or because of, the fact that his ignorance of mathematics was such that when certain calculations were set before him involving many places of decimals he asked what "those damned dots" meant.

It is a great thing for aviation that we should have a Chancellor of the Exchequer who is a convinced believer in the importance of aviation to the Empire, for his faith must necessarily facilitate the approval of increased Air Estimates.

Sir W. Joynson-Hicks is another old friend of aviation in the Cabinet. He was one of the first Members of Parliament to associate himself definitely with aeronautics and during the War he was one of the most ardent advocates of efficiency in the air. As Home Secretary he can be most valuable to the progress of Civil Aviation.

All the other members of the Cabinet have from time to time shown themselves intelligently interested in air affairs, so the Royal Air Force may regard the next few years with confidence and may be assured that its position as our First Line of Defence will be still further enhanced.—C. G. G.

ON Z.R.3.

Washington, Oct. 22.

Naturally the great historical event of the past few weeks in American aeronautics has been the arrival of the Z.R.III, named conversationally "Zecar Three," because the monosyllabic *zee* is regarded on the Continent of America as being more euphonious and more efficient, because less expensive in energy, than our *zedd*, which certainly is an ugly sound. By good luck and the good will of one Lester D. Gardner had the fortune to be very well "in the movement" when Z.R.III arrived.

THE ORIGIN OF Z.R.III.

The story of Z.R.III is a queer romantic tale which goes to prove how nothing in this world happens by accident and that comparatively small things and persons have much influence in the making of history and on the fate of millions. Primarily the Z.R.III is the product of the Hensley Baby. It is true that the Hensley baby does not know it even now. No doubt it will be told all about it in time. Meantime the story is this:—

Major Hensley of the U.S. Army Air Service went to Europe in the British airship R.34, on her return journey. On his arrival in Europe he was appointed to one of the American commissions in Germany, where his wife and baby were with him.

There was no milk to be had in Berlin, Mrs. Hensley and the infant went and lived in Switzerland on Lake Constance, otherwise known as the Bodensee, opposite the Zeppelin Works at Friedrichshafen. And, whenever his duties permitted, Major Hensley used to run down to see his baby, always travelling in the airship *Bodensee*, which had then been commandeered by the French and was running a regular and highly successful service between Berlin and Friedrichshafen.

Travelling so often in the *Bodensee* Major Hensley came to know the Zeppelin people quite well and became friendly with them, as anyone must who meets these quiet keen workers in the cause of aeronautics and who recognizes the patriotism and steadfast bravery with which the men and their crews executed their dangerous duties during the War 1914-18.

On the course of a journey near Friedrichshafen Major Hensley met a man whom he recognised as a fellow-American

and whom he discovered, when they became acquainted, to be a certain Harry Vissering of Chicago whose business is railway engineering supplies and who was in Germany to get gauge-glasses for locomotives.

Mr. Vissering being interested, as all engineers are, in all methods of transport was naturally interested in the *Bodensee* service, and went with Major Hensley to have a look at the Zeppelin Works. There he became convinced of the possibilities of airships and was shocked, as any sane person would be who was not blinded by jealousy or by a spirit of revenge, to learn that under the Treaty of Versailles the Zeppelin works had to be destroyed.

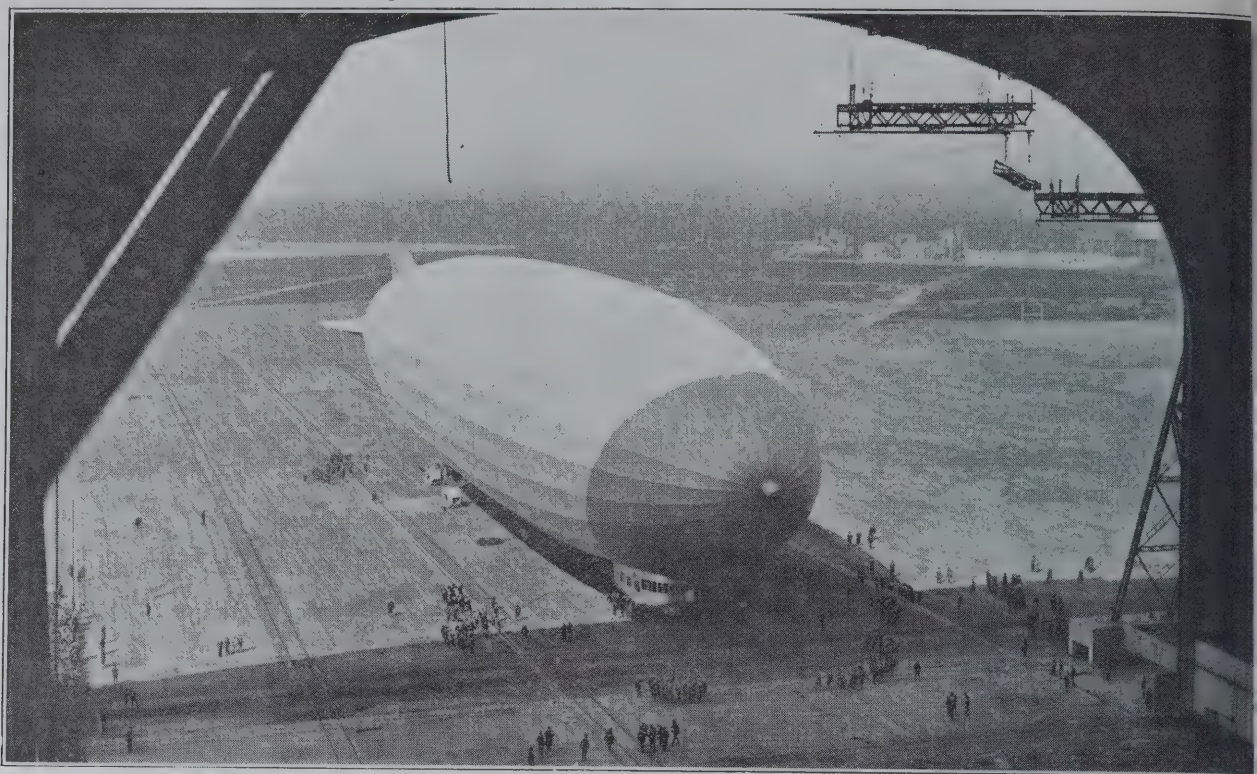
That would mean that all the knowledge of airships gained by the Zeppelin staff would be lost, and the design staff and the skilled mechanics would be dispersed and the special machinery and erecting plant would be reduced to junk. All to please the French.

Mr. Vissering came to the conclusion that such a paltry revenge would be a crime against civilisation, for the Zeppelin firm's knowledge of airship design and construction is years ahead of all that of the rest of the World put together, and the loss of that knowledge would set back airship transport by many years. And, as Rudyard Kipling has told us, "Transportation is Civilisation."

Now, Mr. Vissering was an intimate friend of the late President Harding. In fact Mr. Harding was staying in Mr. Vissering's house when he was nominated for President. So when he got back to the States Mr. Vissering took the whole case to his friend the President.

The position was that France was to have from the German Government one new Zeppelin (later known as the *Dixmude*, and lost by and with her French crew in the Mediterranean) at an agreed price by way of reparation for war damage done by Germany in France. England and Italy also were to have a Zeppelin as a "reparations ship." The German Government, which had already paid the Zeppelin Co. for these ships, was credited with the agreed price against the amount owing to the respective countries for war indemnity.

One condition of the delivery was that the ships were to be delivered by air to their destinations by a German crew. This was perfectly easily done in France, England, and Italy with the ships which had been built during the War. But the



THE HOMECOMING :—Z.R.III entering her new home, the big Naval Airship Shed at Lakehurst. (The black nose merely caused by the shadow of the shed.)

war-time ships could not be flown to America, and so the poor United States, like Mother Hubbard's dog, got none.

AMERICA'S DEMAND.

This was just where Mr. Harry Vissering's astute business brain got in its fine work. He demonstrated to the President that though none of the war-time ships could be delivered by air to America the Zeppelin Company could build a ship which would do so, and that they were prepared to build it and fly it to America at their own expense, for cash on delivery. As a matter of fact the Zeppelin Co. offered to build a ship, fly it to America and back to Germany to demonstrate its capabilities, and then fly it back to America for delivery. Which strikes one as a fair offer.

Now the Vissering idea was that if America claimed a "reparations ship" on those terms and if the other Allies agreed to the American claim, such a ship would have to be specially built. Which would mean keeping the Zeppelin works going and preserving them from destruction for another two years at least and perhaps three, by which time it was hoped that war-time animosities might have died and the Zeppelin Company might be allowed to proceed with ordinary business.

President Harding and his aeronautical advisors agreed to the Vissering scheme (or fell for it, as we say in the States) and so the U.S. Government put in a claim to the other Allies for a perfectly good new reparations Zeppelin, a civilian ship, to be delivered *f.o.b.*; *e. & o.e.*; *c.o.d.*; etc. Lakehurst Air Station, New Jersey, the cash to be paid to the Zeppelin Company by the German Government (that is where the reparations come in) as soon as the U.S. Government signed for the ship as having arrived free from blemish and sound in wind and limb (otherwise gas-bags and air-screws). The other Allies agreed. The order was placed with the Zeppelin Co. And the *Zeear Three* is now sitting comfortably in the big shed at Lakehurst, unless in the meantime the *Shenandoah* has returned from the Pacific Coast and has transferred her helium to the *Zeear*, in which case the latter ship may by now have taken the air.

So, you see, if the Hensley baby had not wanted milk Major Hensley would not have had to travel in the *Bodensee* and would not have become friendly with the Zeppelin folk and would not have met Harry Vissering and Harry Vissering would not have been impressed by the possibilities of big airships and would not have put across through President Harding the bright idea of saving the Zeppelin Works from destruction by the French and the Works would have been destroyed and the knowledge and work and labour of years would have been wasted.

AIRSHIP NAMES.

At the moment people are debating whether the *Zeear Three* shall or shall not be named the *President Harding*. Such seems to be the most fitting name for her. But if she be not named after the President who manoeuvred her into

existence then the most proper name seems to be that of Hensley baby, which unfortunately one does not know.

And apropos of the names of airships, the name *Shenandoah* is supposed to mean "Daughter of the Stars" in some ancient Indian dialect, though there are American citizens who profess to know more about the tongue of Hiawatha and Minnaha who say that it means something far less respectable, something in fact like that famous English racehorse fifty years ago who was called *Filho da Puta*. Personally one regards the name *Shenandoah* as singularly apposite to a war-ship of the air, because it recalls that famous march of General Sherman's in the Civil War after which it was said that as the result of the devastating activity of the troops "a crow could not fly across the Shenandoah Valley because it would die of starvation."—It is curious how Americans remember, if they ever heard of, that example of pre-Hun (1914-18 vintage) efficiency.

THE GERMANO-AMERICAN ALLIANCE.

Furthermore, Mr. Harry Vissering, not being satisfied with merely getting a Zeppelin for the U.S.A., conceived the idea that America ought to have some permanent value out of the ship and that such value could only be secured by establishing a Zeppelin organisation in the States. Therefore he managed somehow to establish an understanding between the Zeppelin Company and the Goodyear Rubber Company of Akron, Ohio, a firm which besides being one of the big makers of vehicle tyres in the World was largely employed during the War 1914-18 in making rubber-lined gas-bags for balloons and eventually built a number of kite-balloons and small airships of the "Blimp" type.

This understanding eventually became a business alliance and some time ago the Goodyear Zeppelin Company was duly registered as an incorporated firm. The result of this alliance may have far-reaching effects in and even before the next war.

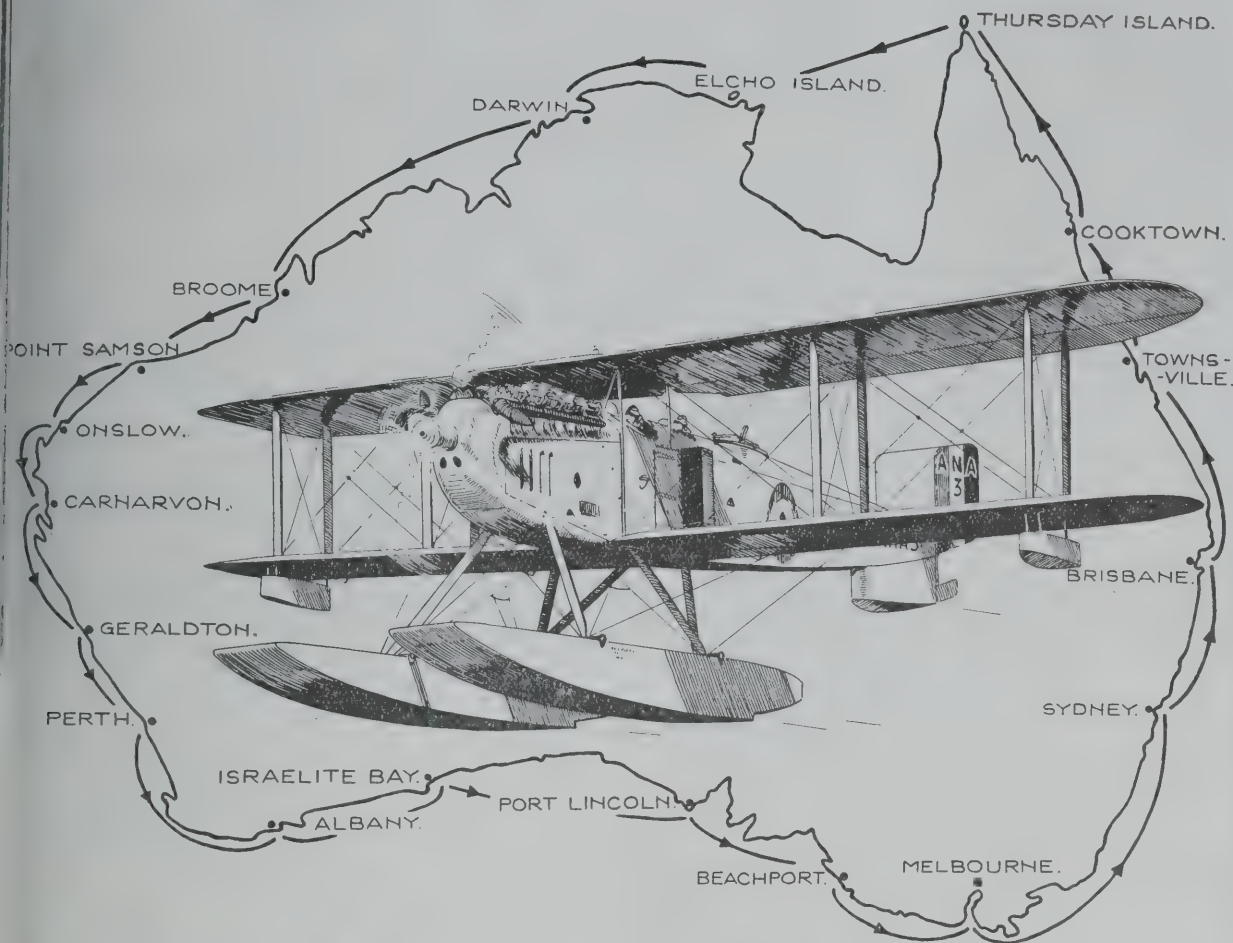
It was the Goodyear Zeppelin Co. which took care of the arrangements for the Z.R.III's journey, except for the part made by the U.S. Government, particularly the entertainment of the officers and men after their arrival.

Z.R.III'S ARRIVAL.

During the first fortnight of one's stay in America the aeronautical atmosphere was buzzing with rumours of Z.R.III. She was going to start next day. She would start for a week. She was having engine trouble. Her engines were proved perfect but weather reports were against her. She was waiting for permission to fly over England. The French had threatened to shoot her down if she came over France. The French were sending an observer to travel in the ship and see that she did not fly over any French fortresses, and he would descend by parachute at Bordeaux. And so forth.

Perhaps the best story of the lot was that when the Zeppelin people were discussing whether to take the North

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"The performance of the machine was absolutely excellent throughout. I have had a good deal of experience of seaplanes but this has far surpassed anything that I had expected. You know the old bogies about sun-warping of wings, yet, although the Fairey encountered heavy rains and was then very severely tested by going suddenly into the tropics, the wood spars and general rigging stood up to it perfectly. During the whole flight we never touched a wire on the rigging. Fabric, controls and everything else connected with the machine were perfect."

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route over England and Ireland and Newfoundland or the Southern route over France, Spain and the Azores, they communicated courteously with the Air Ministry and asked which route they should follow in crossing England, as they did not wish to offend by crossing prohibited areas. It is alleged that the Air Ministry reply, by telegram, was,—“Just follow your usual route.”

If the story be true it is a very pretty tribute to the exploits of the Zeppelin captains during the War 1914-18 and a good example of English humour. If it be untrue it is at any rate a good story.

Finally we learned that Z.R.III really had started on Sunday, Oct. 12, and was expected to arrive on Wednesday Oct. 15. So Mr. Earle Osborne, the owner of that neat little duralumin flying boat built by the Aeromarine Company and illustrated in *THE AEROPLANE* recently, kindly volunteered to escort one down to Lakehurst.

Mr. Osborne, incidentally, is a sportsman rather of the type of our Mr. Alan Butler. He learned to fly a year or so ago for fun and thereafter had that flying boat built for him. Being badly bitten by the aviation bug—as certain Americans put it—he has since devoted himself to aeronautics. He is at present a member of the staff of *Aviation*, where if anywhere in America he will surely learn all there is to know about aviation, service, civilian, trade and technical. And already there seems to be little that he does not know, for one has consistently used him as an information mine for weeks without so far striking a non-paying streak.

Z.R.III was expected at Lakehurst in the afternoon, but she evidently found a friendly draught somewhere, for just as one arrived at the Osborne home at 8 a.m. there was a commotion in the sky and along Fifth Avenue at about 1,000 feet, just nicely to clear the Woolworth Building down town, came the airship glittering in the morning sun. (Though some readers of *THE AEROPLANE* on both sides of the Atlantic may not believe it, there is quite a lot of daylight at 8 a.m.)

It struck one that she was a much prettier shape than the war-time Zeppelins, a better streamline and a cleaner job outside generally. And she manoeuvred beautifully. When we reached the New Jersey Ferry to take train to Lakehurst she was playing round over New York Harbour like a totally emerged dolphin. And it seemed that her rate of climb would have puzzled most aeroplanes.

AT LAKEHURST.

It takes the New Jersey trains hours to get to Lakehurst, so when we arrived Z.R.III was already in the shed and was being lashed down on her chocks, having landed half an hour before.

There was a comic incident about our journey to the shed which is worth telling purely as an example of how things get done. We had accumulated on the train a cheery lad from Yale University who had done a year at Cambridge, and that day was representing the *Yale Daily News*. (Does any English University run its own daily paper?) This lad insinuated himself into the good graces of a hard-featured woman who was waiting for the train in a dilapidated Ford “limousine,” accompanied by an aged dame, and persuaded her to give us a lift to the airship shed, a mile or more away.

We careered furiously over a rough dirt road, incidentally running over a dog, which young Yale, coldly humane, wanted to go back and run over again to put it out of pain. The driver remarked “Guess he’ll die anyway,” and went on—which was certainly the better policy, as it was not her fault that the dog walked under the wheels and to go back would have meant a row with the owner. Meantime one could hear the aged dame’s bones rattling over that awful road—or it may have been the body of the Flivver.

When we approached the shed we were held up by a cordon of Marines, the smartest in appearance of all the U.S. Services. The driver pointed to some bags on the floor and said “Say, buddy, I just gotter get that mail through. Y’cain’t stop Uncle Sam!” And with that drove slap through the cordon, so that we had free passage to the shed anyway.

There we discovered an officer who was looking after the press, and were escorted to a big office where the Zeppelin crew were being passed by the Immigration Department. In this office we found Mr. Litchfield of the Goodyear Company and his aide Mr. Young, and later Mr. Harry Vissering and the Herr Kapitan Doktor Ingenieur Lehmann, a highly-skilled war pilot who had handled the landing of the ship—Doktor Eckener, the Commanding Officer of Z.R.III, had been smuggled off for a rest, which was well deserved, for it was said that he had not slept more than two hours at a stretch all the way across.

INSIDE THE SHIP.

Thanks to the combined good offices of Messrs. Litchfield and Vissering we were let loose inside the ship, a high privilege considering that not more than about a dozen people, Service or civilian, were allowed inside.

It would be useless in the space available to attempt thing like a technical description of the ship, even if we were capable of writing it, which one is not. One can say that she embodies all the Zeppelin Company’s experience, plus the knowledge gained in operating the *Bodensee* and *Nordstern*, plus whatever information they able to get about our failures or troubles with the R.38 series of rigid ships.

An official communiqué issued to the press at Lake gives the following particulars of Z.R.III:—

Capacity.—70,000 cubic metres (2,400,000 cubic feet).

Overall Length.—200 metres (650 feet).

Maximum Diameter.—27.64 metres (90 feet).

Maximum Height (including landing buffer).—31 m (101 feet).

Horse-power (5 Maybachs of 400 h.p. each).—2,000.

Speed.—80 miles per hour.

It is of interest to note that Z.R.III bears the Zeppelin Co.’s own construction number L.Z. 126, indicating that she is not actually the 126 ship built she is at any rate the 126 ship laid down for construction. This number gives an idea of the experience accumulated by the Zeppelin Company in building successful airships as compared with the experience possessed by any other country.

We in England have built a number of fairly successful rigid airships, but we have also built some ghastly failures. It is therefore the more to be hoped that when we actually begin building our two new ships (The Capitalist and the Socialist, as they must be called, to distinguish the British Vickers ship from the Government-built effort at Cardington) we shall somehow arrange for Zeppelin co-operation, so that we may make use of this vast store of knowledge.

It used to be said of the early Zeppelins such as the *Deutschland* and the *Schwaben* of 1910-1912, that after a trip a man used to crawl along the inside of the envelope (hull) with a dust-pan and brush and sweep up the aluminium rivets which had fallen out or had been sheared off during the voyage. Certainly nothing seemed to have jarred in the Z.R.III in spite of her having come through several heavy rain-storms on the way. The only effect that one saw was that the aluminium sheathing of the edges of the airships were badly eroded by impact with the rain, so that they would probably have split and have flown off after a few days in the air; and that the fabric on the starboard of the rear engine gondola (or power-egg) was bulged and split by suction, apparently from the bow-wave of the gondola itself. The split had been roughly patched from inside.

One was told that the engines had run perfectly all time and that no working part or anything else gave trouble.

The forward gondola, which looks so small in the photographs, is divided into a number of compartments. Forward of the bow window, is a saloon as big as the drawing room of the average suburban flat. In the front is the steering wheel and all the control and signal levers. In the middle is a chart-table as big as an ordinary dining table for the officers. And behind are comfortable seats or couches.

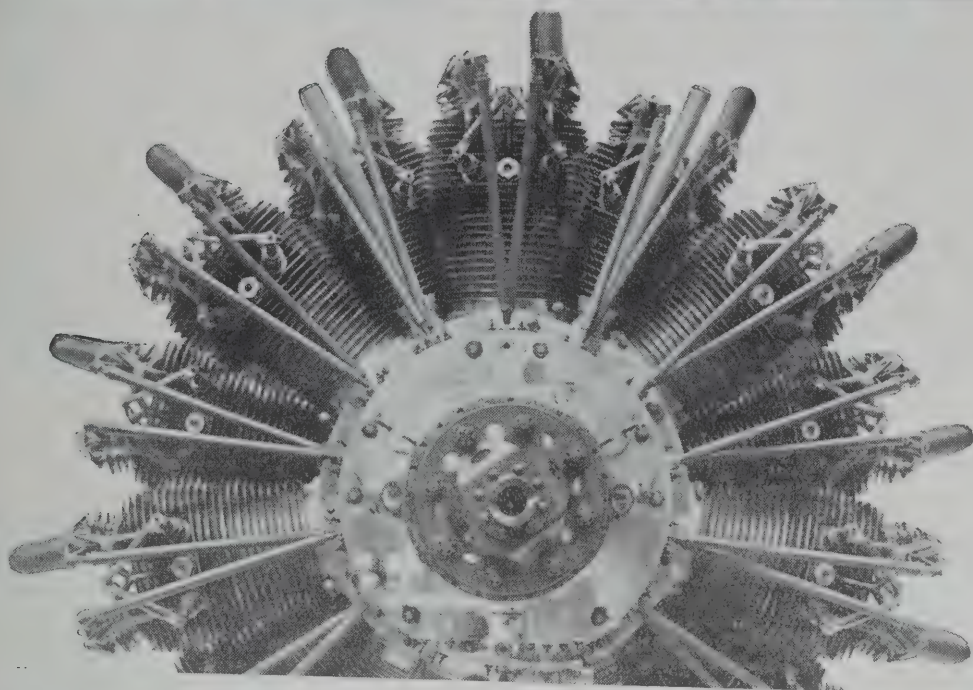
It was interesting to note that in the window-frames elsewhere there were stuck faded bunches of flowers, bouquets which had been presented to the officers on leave at Friedrichshafen. Apparently the officers hold to the superstition which forbids any sailor-man to throw overboard any flowers given him when embarking lest he throw away his luck with them. Or the unwillingness to jettison these part-remains may just have been that tender yet manly sentimentality which is so characteristically Nordic.

Behind the saloon are six compartments, three on each side of the central gangway. Each compartment is bigger than any compartment on a Continental railway. The luxurious seats would each hold four easily, or eight people to the compartment. When the upper berths are let down there are then four beds in each compartment, each bed bigger than an ordinary single bed and nearly as big as a double bed. That is to say there is ample accommodation for twenty-four sleepers.

Behind these compartments are lavatories, store-rooms and so forth, and at the end of the gondola is the wireless cabin, with transmitting apparatus worked by an airship engine.

The living accommodation for the crew is further aft, on the keel of the ship and it is at any rate as comfortable as that for officers, if less luxurious. Cooking is done electrically, naturally. Altogether life on a Zeppelin is quite endurable for three days. And in the twice-a-week ships which the firm hope to build, they will doubtless include a small gymnasium to give passengers a chance of exercise.

The only bit of technical information one got which was of interest is that the Maybach engines (400 h.p. apiece) are reversible. That is to say instead of reversing gear by the airscrews are coupled direct to the engines, and the direction of rotation of the engines themselves is reversed.



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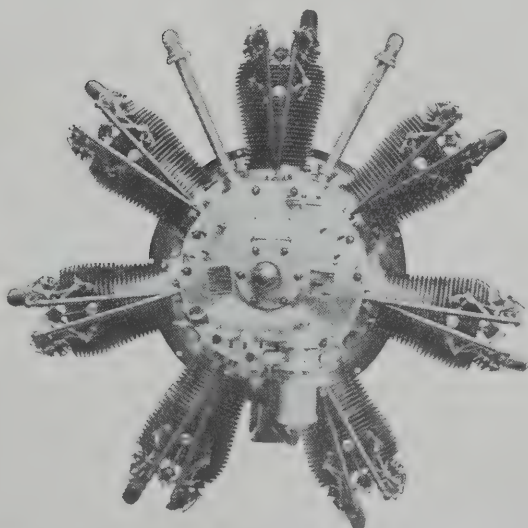
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per b.h.p. hour.
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b.h.p. ‘017 Litres per
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Weight complete,
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some arrangement by which the camshaft is shifted so as to bring a different set of cams into operation.

The method seems sensible in an airship engine where weight is not a first consideration. And anyhow such an arrangement ought to be lighter than the colossal gear-boxes used on the war-time Zeppelins.

AN INTERLUDE.

Apropos of inspecting the interior of the ship, one Carl B. Fritsche, General Manager of the Aircraft Development Corporation of Detroit—a concern which is experimenting with metal envelopes for airships, a very interesting scheme of which one hopes to write more at a later date—was among those along with whom one explored the uninhabited interior. Mr. Fritsche is a clever engineer and a good sportsman and a grade number one enthusiast for airships. Also he has a gift for telling a good story, which gift he exercised later in *The Detrouiter*, by giving one of the best descriptions one has read of the arrival of the Z.R.III.

Among other incidents he tells the following:—

"Capt. Doerr explained the use of the different control systems regulating the speed of the engines as well as other interesting equipment. It was observed that all of the signals were printed in English instead of German, such as 'full speed,' 'half speed,' 'upper rudder,' 'lower rudder,' 'star-board elevator,' 'port elevator.'

"Mr. Grey turned to Capt. Doerr with the remark, phrased in typical English style: 'How interesting it is to observe that all of the navigating instruments are done in English.'

"Quick as a flash, Capt. Doerr replied: 'Well, Mr. Grey, we wanted to make everything as light as possible.'"

There is another version of that story which might read something like this—if people will write imaginary dialogue in the style of the late Jane Austen:—

"Some of us gas-bag fans were just jazzing around inside *Zeear Three* when along comes this English guy with a monocle. He'd kinder hooked up with the Goodyear bunch and was rubbering round to pass upon the luminium work in the ship. This bird he runs a paper called *The Airplane* way back in little old London (Eng.) and he ain't gotten any great use for gas-bag outfits. But after he's pained his eye-balls and near cracked his monocle gazing around he sorter owns up that he's fair sold on Zeppelins.

"Round about then he comes on one of them clock-face stunts like on the Hoboken Ferry, only instead of 'Astern,' 'Ahead,' it says 'upper rudder,' 'lower rudder,' and such-like. And it's made all of luminium instead of brass and glass. So this monocle boob he turns round to a Detrouiter feller and says, 'Say, buddy,' says he 'They gotten all this broadcast talk here in right good American 'stead of German.'

"Just then, along comes old man Doerr, the same that used to pilot Zeppelins before the draft was introduced to the States. Seeing this darned Britisher fingering the broadcaster and thinking the poor fish was mazed at the luminium old man Doerr says:—'Yah! Dot vos zo ain't it. Ve want to make him all zo light as vos not possible don't it.'

"And this Detrouiter chap, who's right peart, you betcher, he makes out that old man Doerr was pulling one over the English mutt's way of making sentences as long as a train of freight-cars out of the Ford railroad depot."

As a matter of fact old man Doerr and friend Carl and oneself all speak much about the same language. But if anybody is going to do any leg-pulling there's always a comeback in this journal right here. Still it is a good yarn anyway.

LANDING OPERATIONS.

An eyewitness of the landing of the ship says that it was one of the prettiest and most impressive things he had seen. Happily the weather was perfect, with a very slight breeze, almost lengthwise of the shed. Captain Lehmann, who was at the controls, brought the ship down to within 100 feet of the ground, stopped his engines, and then reversed them so as to check the way of the ship. The main drag-ropes were dropped into the hands of a landing party and a couple of engines were started to hold the ship up into the wind.

Then there was a little discussion with the officers on the ground as to whether the ship should be walked down-wind into the shed or up-wind, and it was decided to take her up-wind. Accordingly the ship was manoeuvred to bring her nose directly opposite the open lee end.

A little gas was valved out of the forward gas-bags and her nose dropped till the bumping-bag under the forward car first touched the ground and the landing party were able to attach their handling lines. Then the stern was dropped and the lines were attached to the after hand-rails. And three minutes after the lines were attached the great ship was in her shed and resting on the chocks or trestles which had been got ready for her.

The whole performance was a splendid exhibition of bined German and American efficiency.

As the ship moved slowly and solemnly into her berth, an old German couple, a farmer and his wife who had migrated and settled in the district years ago, and had been waiting since dawn by the shed for this triumph of Fatherland, fell on their knees, and with tears running down their faces thanked their God aloud that he had let them see this Day, when the most famous of Germany's sons of war came in peace to the country of their adoption.

The meetings and greetings of those who came in the ship and those who awaited them were little less affecting. Hugo Eckener, the old and tried friend of the great Zeppelin, and the first of all pilots of Zeppelin airships, a big dignified man of sixty years of age at least, climbed slowly down the ladder and publicly embraced Harry V. Goettel, the big-hearted hard-headed far-sighted Chicago business man who through his dead friend President Harding had brought this great scheme to a happy conclusion.

Little Captain Lehmann, as smart and neat and cheerful after his three days in an airship as a cavalry officer on parade, accompanied by big Captain Flemming, a Prussian Guard, stern-looking and upright as an officer of the Prussian Guard, greeted their old comrade, Captain Goettel, who awaited them with the Goodyear-Zeppelin party, a young generation greeting the old, for Lehmann and Flemming were war pilots who know the geography of Europe quite well from above, while Dörr, pilot of the old *Sachsen* and *Schwaben* and the *Deutschlands* (ersatz and other) was of 1910 and 1911, and was kept on test work during the War.

All these able and distinguished officers are now in service or at the disposal of the Goodyear-Zeppelin company, and one hopes that their vast knowledge may be used for good purpose.

The U.S. Naval officers who had travelled in the ship to observe her performance had of course friends by the way to welcome them home. And the men of the Zeppelin when allowed to disembark were well handled by the American marines and sailors of the landing parties.

Altogether it was a very fine show and one felt oneself particularly lucky to have seen so much of it as one did.

A CELEBRATION.

On the evening of Friday Oct. 17 the Goodyear-Zeppelin Company with Mr. Litchfield as chairman (or "toastmaster" as the office is called in the States) entertained the Zeppelin officers and some fifty friends to dinner at the Waldorf-Astoria to celebrate the affair. Dr. Eckener (who really speaks good English) spoke in German, translated by Dr. Lehmann, of the great work of his friend and master Count Zeppelin and expressed his hope that with America's help that work would be continued.

Major Hensley drew attention to Harry Vissering's speech in bringing about the alliance and carefully concealed his own good work.

As the only Englishman in the party, and speaking in protest, one took the liberty of expressing the opinion that those in England who are concerned for aeronautical progress would regard the destruction of the Zeppelin Works as a crime against civilisation.

The most important announcement of the evening was made by Mr. Wilmer, Vice-President of the Goodyear Company. He said that the Goodyear-Zeppelin combine had engaged a staff of engineers and designers, who under the direction of Dr. Lehmann and Captain Dörr, and with co-operation of the Friedrichshafen staff, would get out complete drawings for a Zeppelin of large capacity (5,000,000 feet or so) to be built in America if and when the Government or some adequately financed concern saw fit to order it.

From this it may be seen that newspaper reports to the effect that a Zeppelin is to be built forthwith in America are misleading, or at any rate a trifle previous. No firm should be so foolish as to build a Zeppelin as a speculation. But the Goodyear Company are speculating in the future of airships to the extent of getting out detail designs, and that alone means quite a big expenditure of money. And if the speculation is good, for sooner or later the United States will build big airships for the patrol of the Pacific and for communication with the Panama Canal Defences, an immense amount of time and money will be saved by having the designs and drawings all ready to put into the shops.

CONGRATULATIONS.

Altogether everybody concerned with the affair deserves to be congratulated. The Zeppelin firm have put up a splendid performance. The Goodyear Company have made an excellent deal, for themselves and the Nation. And the Government has acquired the best airship in the world for nothing.

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The Vickers "Virginia" Bomber.

Works:
WEYBRIDGE,
Surrey.

Head Office:

Aviation Dept: Vickers House, Broadway, London, S.W.1.

The ship, under the comic rules of the Versailles Treaty is a civilian ship,—which means that she is not fitted with bomb-gear and has curtains to the cabin windows. But if war broke out to-morrow she would be as useful as any airship which is likely to be built during the first three or four years of the war.

Actually she is to be operated by the U.S. Navy for six months or a year—one is not sure which—and then she is to be handed over to the Army, to train personnel in the peaceful uses of a civilian ship. Thus, as she does not

belong to either of the Fighting Services she is not a ship of war. Consequently she is a Civilian ship. What only shows how English the Americans are, and how perfectly they have inherited the tribal peculiarity of the A Saxon, the Non-Conformist Conscience.

It is a most useful asset. The British Empire was with its help, chiefly by men carrying a Bible in one and a bottle of gin in the other. Of the two the Conscience is more valuable than the Z.R.III. But one congratulates States on having both.—C. G. G.

The Air Minister at the Guildhall.

The Rt. Hon. Sir Samuel Hoare, Secretary of State for Air, replying to the toast of the Royal Air Force at the Guildhall Banquet on Nov. 10, said that he could claim a distinction not possessed by the Prime Minister himself. Amidst the changes of political life he had had the privilege of replying for the same Department at three consecutive Guildhall Banquets.

Two years ago he had ventured to tell the citizens of London that while the efficiency and moral of the R.A.F. was second to none its strength had been so reduced as to leave no squadrons for Home Defence. Last year he was in the happier position of being able to announce that 56 Home Defence Squadrons were to be created. At the end of the present financial year eighteen of these squadrons would be formed.

He hoped that certain Auxiliary and Reserve Squadrons would be created in the near future. The Territorial Associations of the City and County of London had taken a keen interest in the proposed formation of Squadrons in London and he hoped that the first Auxiliary Air Force Squadron would be part of the City Defence Force.

Sir Samuel Hoare went on to say that Air Defence was the most urgent question, but next in importance was the question of Imperial Air Communication. It was impossible to exaggerate the importance of quicker communication between London and the other capitals of the Empire. Many difficulties and misunderstandings were due to the slow methods of communication. If we could reduce the time of the journey between London and Bombay by 10 days and between London and Melbourne by 20 days the benefit to the Empire could not be overestimated. There was no technical reason why this should not be done with airships. Better air communications would help to solve many urgent questions in the Near East.

In this connection he would like to pay tribute to the excellence of the work carried out by the R.A.F. in very difficult circumstances in Iraq. From the point of view of trade and industry the saving of time would mean saving of money and a closer connection with the Empire markets.

Sir Samuel said that these were not fantastic visions. It had been shown that it was possible to run punctual and regular air services between London and the capitals of Europe. These services had carried in the last six months twice as much freight as they had ever carried before. He intended to show with the development of airships that it would be possible to have as dependable a service between London and Bombay as there is now between London and Paris.

Speaking from a personal point of view Sir Samuel said that he should feel that he had deserved in some small measure the honour shown to him in connecting his name with that toast if he were able to do something to bring London into closer and quicker connection with the Dominions and India and so strengthen the foundations of the Empire.

The Lord Thomson's Farewell.

The Lord Thomson, in his farewell message to the staff of the Air Ministry, states:—

My term of office at the Air Ministry, brief as it has been, has confirmed my belief in the almost unlimited potentialities of aviation, both in peace and in war. The achievements of the Royal Air Force during its short existence have already established a great tradition and are a source of legitimate pride to the British people. To the creators of that force our country owes a debt of gratitude; it remains for those who follow them to carry on their work with unflagging zeal.

That this will be so, I feel confident. It has been my good fortune to visit many air stations—at home, in Iraq, Egypt, Palestine, and Transjordan; everywhere I have found keenness, intelligence, devotion to duty, and an admirable organisation. The credit for this is largely due to the wisdom and experience of the staff at the Air Ministry; but the material they have had to handle is magnificent, and the future of the Royal Air Force is assured if a high standard of conduct and efficiency is maintained.

Civil aviation progresses surely from its necessarily small beginnings. If the experiments recently initiated bear fruit, and the airship is added to the aeroplane as a means of communication offering at once speed, safety and wide freedom of movement over land and sea, it is difficult to set bounds to the developments of air transport in the coming years.

In conclusion, I desire to express my heartfelt gratitude for the loyal services of all those who worked with me both at the Ministry and outside it while I was Secretary of State for Air.

Who's Who in the American Aircraft Industry.

At the annual meeting of the Manufacturers' Aircraft Association and of the Aeronautical Chamber of Commerce of America held at 501, Fifth Avenue, New York, the following officers were chosen to serve for the ensuing year:—

For the Manufacturers' Aircraft Association, Frank Russell, Vice-President of the Curtiss Aeroplane and Motor Corp., New York, was elected President, with Glenn Martin, President of the Glenn Martin Co., Cleveland, Ohio, as Vice-President, Charles L. Lawrance, Vice-President of the Wright Aeronautical Corp., Patterson, N.J., as Treasurer and Chance Vought, President of the Chance Vought Corp., Long Island City, N.Y., as Secretary. S. S. Bradley was elected General Manager and Assistant Treasurer.

A new Board of Directors was elected, including the aforementioned officers and George P. Tidmarsh, Boeing Aircraft Co., Seattle, Wash., A. J. Elias, President of G. Elias Bro., Inc., Buffalo, N.Y., and Donald Douglas, President of the Douglas Co., Santa Monica, Cal.

For the Aeronautical Chamber of Commerce of America Charles L. Lawrance, Vice-President of the Wright Aeronautical Corp., Patterson, N.J., was elected President, Henry M. Crane, President of the Society of Automotive Engineers, Alan Jackson, Vice-President of the Standard Oil Co. (Indiana), Chicago, Ill., and J. L. Callan, President of Airships, Inc., Hammondsport, N.Y., as 1st, 2nd and Vice-Presidents respectively. Sherman M. Fairchild, President of the Fairchild Aerial Camera Corp., N.Y., was elected Treasurer, S. S. Bradley, General Manager and Assistant Treasurer, Luther K. Bell, Secretary, and Owen Shannon, Assistant Secretary.

A new Board of Governors was elected, which includes foregoing and W. C. Young, Goodyear Tyre and Rubber Akron, Ohio; F. H. Russell, Vice-President of the Curtiss Aeroplane and Motor Corp., New York; Grover C. Loening, President of the Loening Aeronautical Eng. Co., New York; C. G. Vincent, Vice-President of the Packard Motor Car Co., Detroit; B. D. Thomas, Thomas-Morse Aircraft Corp., Ithaca, N.Y.; Donald Douglas, President of the Douglas Co., Santa Monica, Cal.; J. M. Johnson, President of the Johnson Airplane and Supply Co., Dayton, Ohio, and George P. Tidmarsh, Boeing Aircraft Co., Seattle, Wash.

The Manufacturers' Aircraft Association is a society composed entirely of manufacturers of aircraft who have agreed together that any patents produced by one member shall be available for use by other members of the Association at an agreed rate of royalty. This is known as the "Cross-Licence Agreement" and is designed to avoid litigation about patents between members of the Aircraft Industry as well as to form, so to speak, a close corporation and prevent incompetent newcomers from poaching on the business which has been built up by the pioneer firms.

The Aeronautical Chamber of Commerce, on the other hand, is in fact very much what the Society of British Aircraft Constructors is in Great Britain. It includes not only airplane manufacturers but engine makers and makers of kinds of component parts, accessories and materials which are used in the manufacture of aircraft. To this extent more representative of the American Aircraft Industry is the Manufacturers' Aircraft Association.

Both these associations operate from the same office, 501, Fifth Avenue, New York, which is under the management of Mr. Sam Bradley. In him the Association has an asset of very great value in that he is a man of wide experience and of excellent judgment and although possessing the charm and courtesy which is usually associated with Southern States can when occasion demands be as firm and businesslike as any New Englander.

Both associations are doing most valuable work for the Aircraft Industry and will have much to influence the history of American aviation, which means the aviation of the World, when aviation begins to boom in America.—C. G. G.

A Long Czecho-Slovak Glide.

During the course of a Gliding Meeting organised by the Czecho-Slovakian Aero Club at Brno from Oct. 18-Nov. 1, Major Skala, of the Czecho-Slovak Army Air Service, maintained in the air for 2 hrs. 21 mins. 51 secs. on a Dewoitine monoplane glider.

ROLLS-ROYCE

Aero Engines

THE BEST IN THE WORLD

Some extracts concerning the recent flight of 8,500 miles round Australia from "The Aeroplane" of May 22nd, 1924, entitled

"ON THE AUSTRALIAN TRIUMPH"

"A performance which may fairly be claimed as the finest flight in the history of aviation."

"The durability and reliability shown by the Fairey seaplane and the Rolls-Royce engine have established once more the reputation of English aircraft design and material in the esteem of the aeronautical authorities of foreign nations"

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England to Australia	11,500 miles
England to S. Africa	6,281 miles
England to Sweden (and back)	2,450 miles
England to Constantinople	2,160 miles
Across the Atlantic	1,890 miles
England to Finland	1,100 miles
England to Warsaw	1,050 miles
England to Madrid	855 miles

These flights were accomplished without any change of engines en route

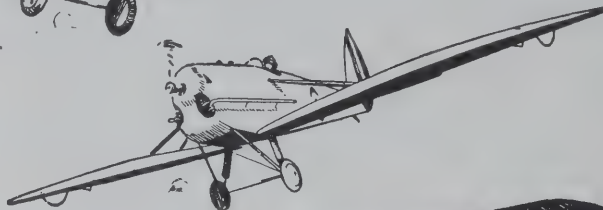
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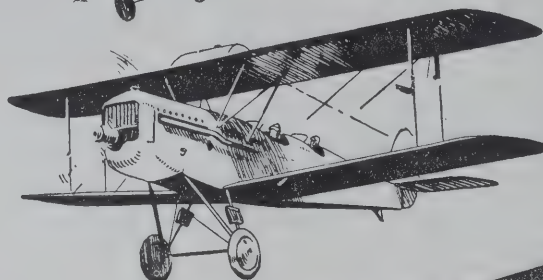
KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



D.H.34
ELEVEN
SEATER
AIR LINER
(450 h.p. Napier
"Lion.")



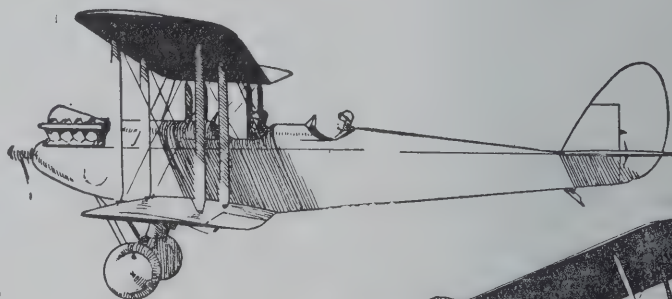
D.H.53
LIGHT
MONOPLANE
For TRAINING
and PRACTICE
(696 c.c. Blackburn.)



D.H.37
HIGH
PERFORMANCE
TOURING
AIRCRAFT
(Rolls-Royce
"Falcon.")



D.H.50
FOUR PASSENGER
COMMERCIAL
AEROPLANE
(230 h.p. Siddeley
"Puma.")



D.H.51
OCCASIONAL
THREE SEATER
OR DUAL CONTROL
TRAINING
AIRCRAFT
(R.A.F. or Renault.)



D.H.42
HIGH
PERFORMANCE
TWO SEATER
MILITARY
AIRCRAFT
(Bristol "Jupiter" or
Siddeley "Jaguar.")



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THE ROYAL AIR FORCE.
The London Gazette.

Nov. 4.
GENERAL DUTIES BRANCH.—Flt. Lt. H. Dunboyne O'Neill, A.F.C., is granted a perm. comm. in the rank stated (Nov. 5); the seniority of Flt. Off. J. C. Hill in that rank is antedated to May 10, 1922; Flt. Lt. J. Leathley, M.C., is placed on half-pay, scale B. (Nov. 4); Flg. Off. (Hon. Flt. Lt.) G. McClintock (Lt., R.N., ret'd.) resigns his S.S. comm. (Nov. 5).
STORES BRANCH.—The following Flg. Offs. are granted perm. comms. in the rank stated (Nov. 5):—J. Davison, G. Scarott, C. N. Scott. The following Flg. Offs. are granted perm. comms. for accountant duties in the rank stated (Nov. 5):—B. L. Blofeld, W. E. Fisher, M.C., V. J. Heneghan, L. de L. Leder, A. E. Vautier, M.C.
MEDICAL BRANCH.—G. J. Hanly, M.B., is granted a S.S. comm. as a Flt. Off., with effect from, and with seniority of, Oct. 23.
RESERVE OF AIR FORCE OFFICERS.—Flg. Off. J. N. Ogilvie is confirmed in rank, Oct. 12.

Appointments.

Week ending Nov. 10.
GENERAL DUTIES BRANCH.—Air Commodore A. M. Longmore, D.S.O., to R.A.F. Depot, on transfer to Home Estab., 16/10, and to No. 7 Cup H.Q., Andover, to command, 26/11.
Light Lieutenants S. N. Cole, to No. 2 F.T.S., Digby, on transfer to Home Estab., 27/10. W. H. Dunn, D.S.C., to R.A.F. Depot on transfer to Home Estab., 10/10. G. H. Harrison, to remain at Boys' Vig, Cranwell.
Flying Officers C. R. Smythe, G. F. Mackay, and H. E. Greenberry, to R.A.F. Depot on transfer to Home Estab., 10/10. J. Glover, to No. 1 School of T.T. (Boys), Halton, 10/11. J. R. D. Goadsby, to No. 58 Sqn., Worthy Down, on transfer to Home Estab., 4/11. G. F. Blackburn, to No. 9 Sqn., Manston, on transfer to Home Estab., 10/10. W. G. Nicholls, to No. 1 School of T.T. (Boys), Halton, on transfer to Home Estab., 10/10. R. H. Haworth-Booth, D.F.C., to No. 32 Sqn., Kenley, on transfer to Home Estab., 7/11. C. F. H. Gee, to No. 1 School of T.T. (Boys), Halton, on transfer to Home Estab., 10/10. J. E. Doran-Webb, to No. 17 Sqn., Hawkinge, 5/11. J. Miles, to No. 1 F.T.S., Netheravon, 17/11. R. F. Casey, D.F.C., to No. 32 Sqn., Kenley, 10/11. J. Parsons, to Reception Depot, Drayton, 10/11. G. N. Coward, to No. 100 Sqn., Spittlegate, 10/11. N. M. Ffrench, to Armament and Gunnery School, Eastchurch, 4/11. C. W. A. Scott, to remain at No. 32 Sqn. (Hon. Flt. Lt., S. Ingle, M.C., and H. B. Holdway, to No. 27 Sqn., India, 3/10. M. Rooth and (Hon. Flt. Lt.) W. H. Vetch, to No. 60 Sqn., India, 10/10.
Pilot Officers D. C. Burnley and C. N. A. B. Mumby, to No. 27 Sqn., India, instead of to No. 60 Sqn., 23/9. J. B. Townend, to Aircraft Depot, India, instead of to No. 27 Sqn., 23/9. H. M. S. Wright, to No. 32 Sqn., Kenley, 10/11. H. L. R. Gough, and J. A. Wilson, to No. 39 Sqn., Spittlegate, 10/11.
MEDICAL BRANCH.—Wing Commander (Medical) B. A. Playne, D.S.O., to H.Q., Iraq, for duty as Medical Officer, 1/10. Flight Lieutenant (Medical) G. Kinneir, to Basrah Group H.Q., Iraq, 8/10. Flying Officer (Medical) A. Harvey, M.B., to R.A.F. Depot, 6/11.
STORES BRANCH.—Wing Commander (Accountant) J. Rylands, to No. 1 School of T.T. (Boys), Halton, for duty as H.Q. Accountant Officer, 1/10. Flying Officer (Stores) A. S. Berry, to H.Q., India, 16/10. Flying Officers (Accountant) F. R. Barton, to Central Accounts Office, India, 14/10. B. C. Powell, to R.A.F. Depot, on transfer to Home Estab., 19/10.

Accountant Officers in the R.A.F.

The Air Ministry announces that the following candidates for permanent commissions in the Accountant Branch of the R.A.F. have been declared successful as a result of a com-

petition held by the Civil Service Commissioners, subject, in certain cases, to further medical examination.
McBroom, A., West, A. E., Goodall, C., Aston, C. E., Thomas, J. R., Titherington, H. J., George, S. C., Hill, S. W., Collinson, R. W., Holmes, K. E. M., Murray, J. MacL., Spicer, I. M., Goatcher, C. F., Lorimer, C., Heasman, L. G., Mallinson, R., Smith, Edward.
It is anticipated that a small number of additional appointments to commissions may be made on the results of this competition early in 1925.

THE SECOND ROUND AUSTRALIA FLIGHT.

It will be remembered that on Aug. 7 a D.H.50 carrying Lieut.-Col. Brinsmead, Controller of Civil Aviation, Mr. R. H. Buchanan, Director of Aircraft Inspection, and Capt. E. J. Jones, M.C., D.F.C., Superintendent of Flying Operations, who acted as pilot, left Melbourne at 10.30 hours to fly round Australia, arriving back at Melbourne on Aug. 29 at 12.00 hours, after having circumnavigated the Australian continent in 22 days.

The following letter has been received by the De Havilland Aircraft Co., Ltd., from Lieut.-Col. Brinsmead.

Commonwealth of Australia,
Department of Defence,
Melbourne,
Sept. 13, 1924.

Dear Sir,

I have no doubt that you will be greatly interested to receive some details regarding the Round-Australia Flight which was successfully completed recently on the D.H.50 machine supplied by you.

The objects of the trip, which involved the flying of some 8,000 miles, of which a considerable proportion had never been flown previously, were to demonstrate the "50" to companies operating regular services within the Commonwealth and, incidentally, to examine potential air routes and proposed extensions to existing services.

The journey was commenced from Melbourne on Aug. 7—two days after the erection of the machine was completed and after the machine had been flown but 2 hours 15 minutes in tests. It was originally proposed to carry out at least 10 hours' flying on the machine before taking it on its long journey, but after the initial test trip it was realised that to do so would be quite unnecessary.

Throughout the journey, which occupied 22 days and 2 hours, the machine behaved exceptionally well and was always more than equal to the task ahead of it each day. It was in the air for 25 consecutive days, including test flights, and we were able to complete the journey in five days less than we had originally estimated as the minimum period for completion.

The machine was loaded almost up to the total load allowed by the Certificate of Airworthiness and its performance throughout was all that could be desired.

The only spare parts used during the journey were three inner inlet valve springs and two sparking plugs, and no adjustments or repairs whatever were made to the machine apart from the tightening up of wing bracing, the slackness in which was, of course, due to the relatively high temperatures encountered in the tropics.

The whole of the credit for keeping the engine in such a condition as to enable the machine to carry out an average of four hours' flying for 23 consecutive days over a route where facilities for overhauls and adjustments were practically non-existent was due to Aircraft Inspector R. H. Buchanan, who accompanied the party as mechanic.

It is pleasing to note the large amount of attention that has been paid to those small details of design that make for perfection.

I refer particularly to the degree of comfort, both from the passengers' and pilot's points of view, that has been made a feature of this machine, and I have no hesitation in saying that the "50" is the nicest machine I have ever journeyed in and—if I may be permitted to say so—that it is a credit to the designer and to the de Havilland Aircraft Company's staff.

The machine has been carefully overhauled since return to Melbourne and is found to be in such condition throughout that I should, if necessary, have no hesitation in setting out immediately on a repetition of the circuit.

I think you will agree with me that even granting the excellence of the machine and engine such a satisfactory performance could not have been attained by other than a really first-class pilot. The pilot (Capt. E. J. Jones, M.C., D.F.C., Superintendent of Flying Operations in my Branch) not only flew about 90 hours in three weeks, but landed on some 40 occasions on aerodromes, many of which had been prepared by enthusiastic station-owners in the Northern Territory and Kimberleys who had never previously seen an aeroplane, and the surface and approaches of which bore but faint resemblance to that of, say, Croydon.

(Signed) H. C. BRINSMEAD,
Controller of Civil Aviation.



The Route of Col. Brinsmead's Journey.

AN ANALYSIS OF LIGHT AEROPLANE RESULTS.

On Thursday, Oct. 30, Major J. S. Buchanan read a paper entitled the Royal Aero Club Light Aeroplane Competitions before a meeting of the Royal Aeronautical Society. The author described the history of the light aeroplane movement in this country, tracing it from the interest aroused by German gliding experiments, through the Itford gliding meeting of 1922, the single-seater competitions of 1923 and the two-seater competitions of this year. The paper was accompanied by a series of appendices giving an abstract of the contest rules of the 1923 and 1924 contests, tabular specifications of characteristics, weights and performances of the 1923 single-seaters, similar specifications of the 1924 two-seaters, an analysis of the weight distribution (structure, power unit, and load) of both 1923 and 1924 machines, and finally, for comparison with the getting-off and landing performances of the 1924 light aeroplanes, a table of the similar performances for the commercial machines entered at the Air Ministry Commercial Competitions of 1920.

The author discussed the results obtained at the two light aeroplane meetings at some length and only a general summary of his views is here given. Taking first the single-seater trials he considered that the engines on the whole ran very well, although geared drives did not prove satisfactory. The average power loading of 30-35 lbs. per h.p., in conjunction with the wing loadings used, gave sufficient power for reasonable flight, and the machines generally shewed the ability to forced-land in a restricted area at least as easily as an aeroplane with a larger reserve of power.

CONSTRUCTION.

Of fifteen aeroplanes flown, only three were biplanes, and these were all handicapped by engine trouble. It was difficult to estimate the relative advantages of monoplane and biplane—but both types proved to fly satisfactorily.

Constructionally the majority of the aircraft had been carefully designed, and although scantlings were rather fine, no trouble arose from this during the week's flying. At the same time in most cases the size of members was unsuitable for rough handling. (This happens to be true of all practical aircraft, and such evidence as is available from practical experience indicates that the apparent relative delicacy of light aeroplane structures is purely an optical illusion. In fact such machines stand brutal ill-treatment very much better than will larger machines designed to the same load factors.—Ed.)

A great range of aerofoils was used, but there was no evidence than any particular type of aerofoil was better than any other.

LANDING GEARS.

On the whole, landing gears, with one or two exceptions, could not be considered satisfactory. It was apparent that small wheels inside the fuselage were not suitable for general work as they involve a small angle on the ground and a long run to get off and land. They also render the fuselage liable to accidental damage. (Here again it seems as though Major Buchanan had allowed appearances to influence his opinion despite the evidence of experience. In the type of landing which is likely to lead to the breakage of the undercarriage, machines with normal type undercarriages are liable either to turn over on their nose or on a wing-tip, with very severe structural damage. With the wheel in the fuselage type, neither method of turning over is at all likely and the damage to the lower rail of the fuselage which results from wheel or shock-absorber failure is found to be very localised and usually simple to repair.—Ed.)

Experience with a number of D.H.53 machines with Blackburne engines in the R.A.F. showed that this type would stand up satisfactorily to ordinary service use.

On the whole it was difficult to assess the result of the competition. None of the machines could be considered to show novelty either in structure or aerodynamical features. But

they did exceed expectations in regard to performance. They got off the ground and flew comfortably at 30-35 lbs. h.p., and even, in one case, at 60 lbs. per h.p. The machine which had been accurately tested (the Gull) had an L/D of 14 and possibly others were even better. The result was to clean design, which was facilitated by the fact that engines were so small that they did not interfere with a good fuselage line.

Regarding the two-seaters of 1924, it was evident that sufficient time had been allowed to the engine maker to develop the engines.

PERFORMANCE OF TWO-SEATERS.

Despite this, performances again exceeded expectations. The 2/1 speed range of the Beardmore was a notable performance for 26.8 lbs. per h.p. The general impression of pilots was that the performance and feel of the machines was satisfactory, but that a better rate of climb off the ground was desirable.

The competition had demonstrated the safety of the light aeroplane in forced landings. Statistics for normal aircraft show that one forced landing out of four leads to damage to the machine. It was not possible to give accurate figures for the number of forced landings during this competition, the author estimated them at between 40 and 50, and in one case was there any damage.

The get-off and landing performance compared favourably with those of aircraft of half the weight per h.p., as a comparison with the 1920 commercial machine tests showed.

The same remarks as had been made concerning the structural design of the single-seaters applied to the two-seaters except that the undercarriages fitted in 1924 were generally superior to those of 1923. The get-off and landing tests probably accounted for this. The Bristol Company's production of an all-metal machine of this size was a distinct achievement, but it was doubtful if the type could be produced at a reasonable price.

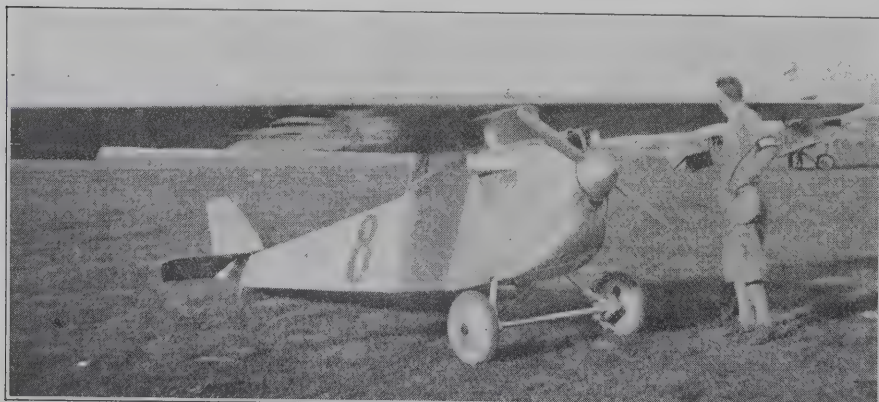
THE MONO- V. BI-PLANE QUESTION.

Of 15 machines presented to the judges, nine were biplanes, indicating that the designers of the country as a whole considered that for all-round suitability—that is, for performance and robustness—the biplane was the superior type. It should be remembered that of 16 types entered, nine were monoplanes and seven biplanes, and that two of the biplanes presented were designed as monoplanes, but had a top wing fitted because it was felt that the biplane would score more marks in the contest, although the monoplane was probably the more useful machine.—Ed.)

It was difficult to sort out from the results of the contest any indication of the relative efficiency and performance of the two types. Monoplanes won the principal prizes, but results were so affected by engine difficulties that this result was of little technical value. If one took the speed figure for one lap of the speed course instead of the official figure for ten laps, the relative positions of the competitors would have been profoundly changed. The Beardmore would have remained first, the A.B.C.-engined Hawker second, the Bristol third, and the Anzani Hawker fourth.

A large number of engine failures were reported which gave the impression that the engines were unsatisfactory. Really, on investigation, they were found to be doing very well and the troubles were really due to overloading, the engine being run in practically all cases above the maximum permissible r.p.m. It was not surprising, therefore, that many failures occurred.

It seemed clear from the results of this competition that more power was required and that engine speeds must be kept down. The geared engine had again failed to keep the air, and although there was no doubt as to the aerodynamical advantage of the geared type it seemed that considerations



(Photograph by Mr. Earle Osborne.)

A NEAT AMERICAN LIGHT AEROPLANE.—The Driggs-Johnson monoplane with a four-cylinder Henders engine of 80 cubic inches (1,300 c.c.) capacity. The machine has a span of 27 ft., an area of 75 sq. ft. and an aspect ratio of 9.75 and an enclosed pilot cockpit.

The fuselage, of steel tubing, is of triangular section behind the cockpit and the tail surfaces are of steel construction. The weight empty is 325 lbs., and fully loaded 510, giving 6.8 lbs. per square foot and about 23 lbs. per h.p.

This machine won the race for the Dayton Daily News Trophy and was 2nd in the Speed and Efficiency race for Trophies given by the Dayton Bicycle Club and the Engineers' Club.

EFFICIENCY

THE remarkably low fuel and oil consumption, together with the extremely light weight per horsepower make the Wright "T" engine the most efficient thus far produced.

The small space occupied by the "T" engine in planes adds tremendously to the general efficiency of the entire unit. The frontal area per H.P. is lower than others. The compactness is such they frequently can be installed in the same space formerly occupied by a 400 H.P. engine.

Wright production skill, together with Wright designing and engineering experience are constantly creating higher standards in aeronautical efficiency.

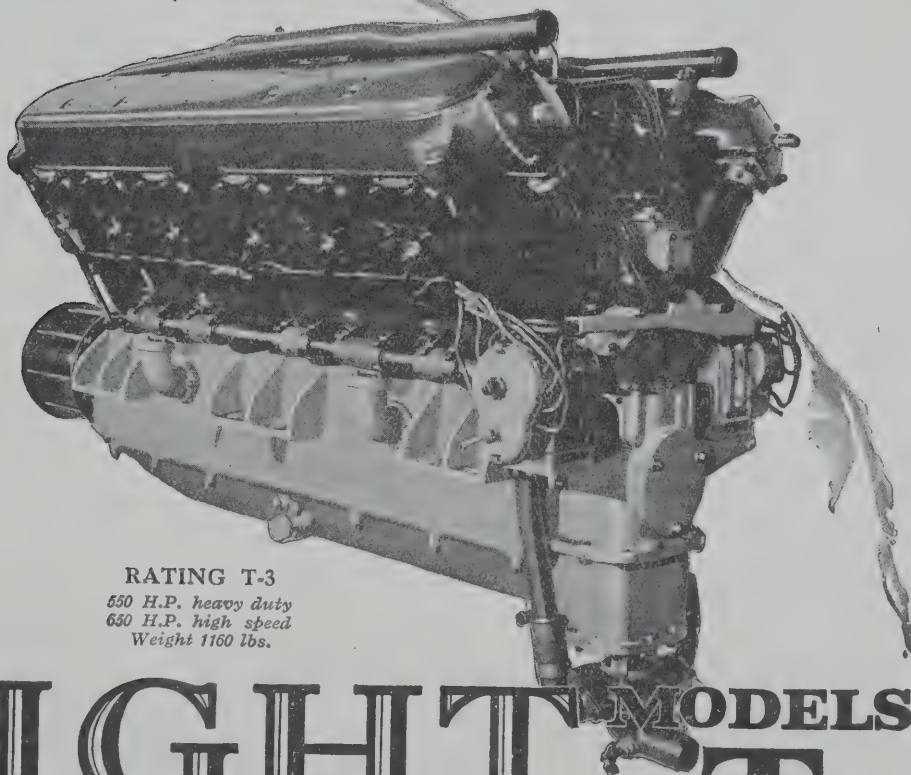
WRIGHT AERONAUTICAL CORPORATION
Paterson, New Jersey, U. S. A.



"The
Identification of
Incomparable
Service"



ency tests disclosed that
and oil consumption of
Wright "T" engine in flight
sponded very closely in
as to the consumption of
smaller engine in the same
. The efficiency of the
hrottled down to flying
itions compared most
ably with the consump-
ests of smaller engines.



RATING T-3
550 H.P. heavy duty
650 H.P. high speed
Weight 1160 lbs.

WRIGHT MODELS T ENGINES

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

engine design precluded its use. This was regrettable as it limited engine speed and would have the effect of still further increasing engine size.

The main object of the competitions was to make flying cheap and safe and so to popularise it. From the tests we had learned that 15 to 18 h.p. was adequate power for a single-seater and it was clear that something like 40 h.p. was needed for the two-seater. Hitherto the aeroplane designer had been in the hands of the engine builder and he had progressed in virtue of the increased power available. The light aeroplane had reversed this state of affairs and led the designer to strive for maximum aerodynamic efficiency and a minimum structure weight compatible with strength and robustness, if the light aeroplane was to become a factor in aviation.

A glance at the table of weight schedules showed that the structure weight of light aeroplanes was relatively high. The average figure was 44 per cent. of the total for single-seaters and 42 per cent. for two-seaters, as against 33 per cent. for larger types. The average load carried, however, was 37 per cent. for single-seaters and 41 per cent. for two-seaters, against 25 to 30 per cent. for larger machines. Some of this was accounted for by the small amount of fuel carried by the light aeroplane. Another feature was the small weight of the power unit—which again was affected by the small weight of fuel. There should be some margin for improvement in structure weight of light aeroplanes by the adoption of new methods and materials of construction. The figure for the Hawker machines (32.5 and 33.2 per cent. structure weight) showed what could be done by careful design.

It was clear that the aeroplanes entered for the competitions were not cheap to build. Unless both first cost and running expenses were kept down, the market for the type would never be more than a very restricted one.

The question of petrol consumption needed to be kept in mind. It was important in the attempt to provide plenty of power not to increase fuel consumption until it became again an important factor in operation.

Altogether a good deal had been done towards solving the problem of the cheap, safe aeroplane—but much more remained to do and every care should be exercised to see that in correcting present defects the good qualities already attained were not sacrificed.

Finally the author suggested that the small seaplane was worth attention. A step up in engine size would be necessary, but he thought 1,100 c.c. would suffice (for a single-seater, presumably).

THE DISCUSSION.

Major R. H. MAYO said that the author had said that light aeroplanes carried a load per h.p. which could not be equalled in larger machines. Actually this was not the case—you could carry the same load if you were content with the same performance. The L/D ratio attained by any machine was largely determined by the purpose for which you designed and you could not expect the same figure for a Pulitzer Trophy racer as you could get in a light aeroplane. He thought that so far nobody had defined what was wanted of the light aeroplane. After petrol consumption had been reduced to below a certain limit it ceased to be an important factor. What was wanted was a cheap robust machine with an efficient landing gear, and to obtain such a machine you must have more power. The figure that seemed to be in everybody's mind was a two-litre engine, but he did not think that enough. A lesson from this year's competition was that the rules for the next meeting ought to be decided at once and should define the requirements more rigorously than had been the case hitherto. Personally he thought there should be an engine contest next year, and a competition for machines with a selected engine the following year.

Major A. R. LOW said that he rose to protest vigorously against the previous speaker's assertion that a big machine could be built to carry the same load per h.p. as a small one. The matter had been the subject of much discussion and was too long to enter upon then, but the theory of dimensions showed that it was not true that the large machine could be made to equal the small one in this respect.

Mr. W. O. MANNING said that the author had commented on the relatively high structure weight of light aeroplanes. Structure weight, however, was not a very good basis for comparison, the weight empty gave a better comparison, for if one made a machine more efficient the engine weight went down. As to the engine power required it all depended on the performance desired. The Air Ministry had not said what performance they wanted. If they could use a small engine the cost of upkeep came down at once. Martlesham had found that it took one man half a day thoroughly to overhaul the Wren's engine, and consequently that engine had been kept in tip-top condition. As to the monoplane versus biplane question, it was not necessarily fair to excuse the biplanes for their engine trouble. The

monoplanes might be so much more efficient that they could give the engines an easier time, and so avoid engine trouble. He thought actually that the petrol consumption of the two-seaters was astonishingly good, 30 m.p.g. at the speed was far better than anything attained by any other seater vehicle.

For the future he wished to emphasise the possibilities of class racing on limited engine capacities. A 750 c.c. engine would be just as interesting and a good deal cheaper than the Pulitzer Trophy racer, and might teach them just as much.

Maj.-Gen. Sir SEFTON BRANCKER apologised for intruding a technical discussion on the ground that he was seeking enlightenment. He wanted to know if the small machine could be used accurately to forecast the performance and behaviour of a larger machine. If it could why could he not use a commercial machine which would carry 15 lbs. of useful load per h.p. at 75 m.p.h.? Because if he could it would make a vast difference to the development of commercial aviation.

He did not understand why people were pessimistic about the light aeroplane competitions. The only failure was in engine reliability and cost. If money could be saved by building heavier machines then it would be necessary to make them larger and more powerful.

He quite agreed as to the value of racing and he thought that the Aero Club which meditated a large programme for next year must give its attention to light aeroplane racing.

The Air Ministry was considering the light aeroplane question very carefully. It was impossible to make any official announcement, but it could be said that they were determined to do everything possible to promote the use of existing future types.

Capt. SAYERS said that structure weights of light aeroplanes tended to be heavy because there were so many details which did not decrease in weight in due proportion to the total weight of the whole machine. Things like pilots' seats and controls tended to be as heavy in the small machine as in the large and he knew of one case where an air-speed indicator weighed as much as the engine mounting. The value of the structure weight percentage for comparative purposes depended upon a very careful analysis of the items which were treated as structure.

In the case of the first light aeroplane built in this country—the Grain Kitten—he had been reproved by the Air Board for basing his weight estimates on an impossible structure weight of about 25 per cent. and for stressing purposes the fully-loaded weight was increased from 550 lbs. to 650 lbs. The actual full load weight was under 500 lbs., so that the impossible structure weight had been achieved. But this machine was an exceedingly expensive one to build—it probably cost as much as a 200-h.p. single-seater of the same time.

This question really entered into the problem of monoplane v. biplane for light aeroplanes. If you used a biplane you could save weight. The machine then becomes a jigsaw puzzle of small, costly, and intricate parts. If you used a monoplane you could use relatively large sections and a simple structure for which you pay in structure weight. But the aerodynamic efficiency compensated and you got a cheaper and more robust machine.

Then very particularly he disagreed that more power was wanted. With the 35 h.p. or so actually obtained at Lympne a performance equal to that of the standard Service training machine was obtainable. There was enough power—but one might reasonably hold that for service a larger, more easily-run, engine was desirable, giving the same power with greater reliability and requiring less attention.

Also he thought there was more to be said concerning fuel consumption than had been said. You could not practically get more than 2 h.p. hours from a pound of petrol, and if you set a fuel-consumption limit you automatically limited power, leaving the designer full freedom to get his power either from a small, heavily-pressed engine or a larger, more easily-run type.

If they specified a limit of cylinder capacity they would always encourage the pushing of engines up to their limit which was not the way to get reliability or cheap maintenance.

Flt. Lt. HAIG said that the remarks concerning the gear engine's failure at Lympne should be taken in the light of the fact that the engine had less than two months of development. And he thought the low-wing monoplane was somewhat dangerous in case of turning over.

Sir HENRY WHITE-SMITH queried the wisdom of allowing the power for light aeroplanes to be increased at this period. The present engine was only at the beginning of development, would it not be well to give it another year at least? It could not but be expected that by next year better engine and better machines of the same size would be available. If they started now on a new size engine they might have



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the same sort of troubles next year. It was not to be expected that everything could be achieved at once.

The object to be aimed at in the next contest should be laid down at once. The competition machines were expensive to build and he thought it might be worth while offering as a prize an undertaking to purchase, say, 25 machines, at a specified price.

Mr. ROY FEDDEN thought it scarcely fair to put the blame for geared-engine troubles on the engine. He admitted that he had learnt a good deal about geared engines at Lympne, and he could undertake to make the geared type quite reliable, provided the aeroplane designer would think of the torque in foot lbs. If they had done this some of the engine mountings seen at Lympne would never have appeared.

What exactly did the author mean by saying 40 h.p. was necessary? Did he mean 40 h.p. all the time? The aeroplane designers seemed to think 25 to 30 h.p. steadily, with 40 h.p. for five minutes occasionally, was enough. If so the 1,100 c.c. engine could be made perfectly satisfactory. The Wee Bee and the Brownie averaged 33½ m.p.g. without tuning for economy, and if so tuned, 43 m.p.g. could be attained if performance was sacrificed.

He agreed with Capt. Sayers as to the desirability of not increasing the power and also that possibly a bigger capacity engine of the same power might be a little less trouble to maintain. But on experience with the present engines he felt certain that he could get them to run 150 hours without overhaul.

Mr. SIGRIST said as a constructor he thought they were trying to build too efficient an aeroplane. It would be much cheaper to build a larger, heavier aeroplane with a bigger engine. You would always have trouble with the little engine. The Ford car was the cheapest car to produce yet made—despite its size. The cost of petrol was quite a negligible part of the total and could be neglected.

Flt. Lt. SODEN wanted to know when a light aeroplane ceased to be a light aeroplane? He had an Austen Whippet

of some years of age which seemed to have lumps of stuck about it to help the weight. It could easily carry weight of a suit-case, but had nowhere where the suit could be put. A light aeroplane was wanted on which could go away for a week-end.

With a 50-h.p. engine his petrol consumption was 22 m.p.g. and he could quite easily take his engine out unaided. he could fly comfortably in any weather—even such as considered officially too bad for Siskins.

Lt.-Col. TIZARD said that two quite different aspects of flying seemed to have got confused in the light aeroplane movement. It had developed from the glider, which was purely a sporting affair, and Lympne had been chosen for light aeroplane tests because of the facilities it afforded for use of up-currents. Consequently he could not regard performance figures attained at Lympne as reasonably accurate. Cheapness was the primary consideration from business point of view and they could not come to any conclusions as to the utility of cheap aeroplanes on inaccurate data.

Major BUCHANAN, in reply, said that in fact nobody built large machines carrying the same load per h.p. as small ones. It was certainly possible to test new dynamic features on the small aeroplanes before using them on large ones, but they would not get the same useful work per h.p. in the large machines largely because of the increased fuel capacity. The light aeroplane was essentially for use and did not need large fuel capacity. He agreed that some of the machines at Lympne were too light to be economically justifiable. Also he agreed that it was desirable to put up power if that could be avoided.

He thoroughly agreed that it would be good to get a rating from the light-car cubic centimetre rating—it was h.p. per cubic inch. An aeroplane designer was interested in. An engine giving 40 h.p. at a speed giving good airscrew efficiency was desirable.

Mr. Sigrist must have built his machine quite regardless of cost, according to his own statement. He could not agree with him that petrol consumption could be neglected.

He admitted that the figures he was able to give were not as accurate as could be wished—he hoped in time to have Martlesham figures.

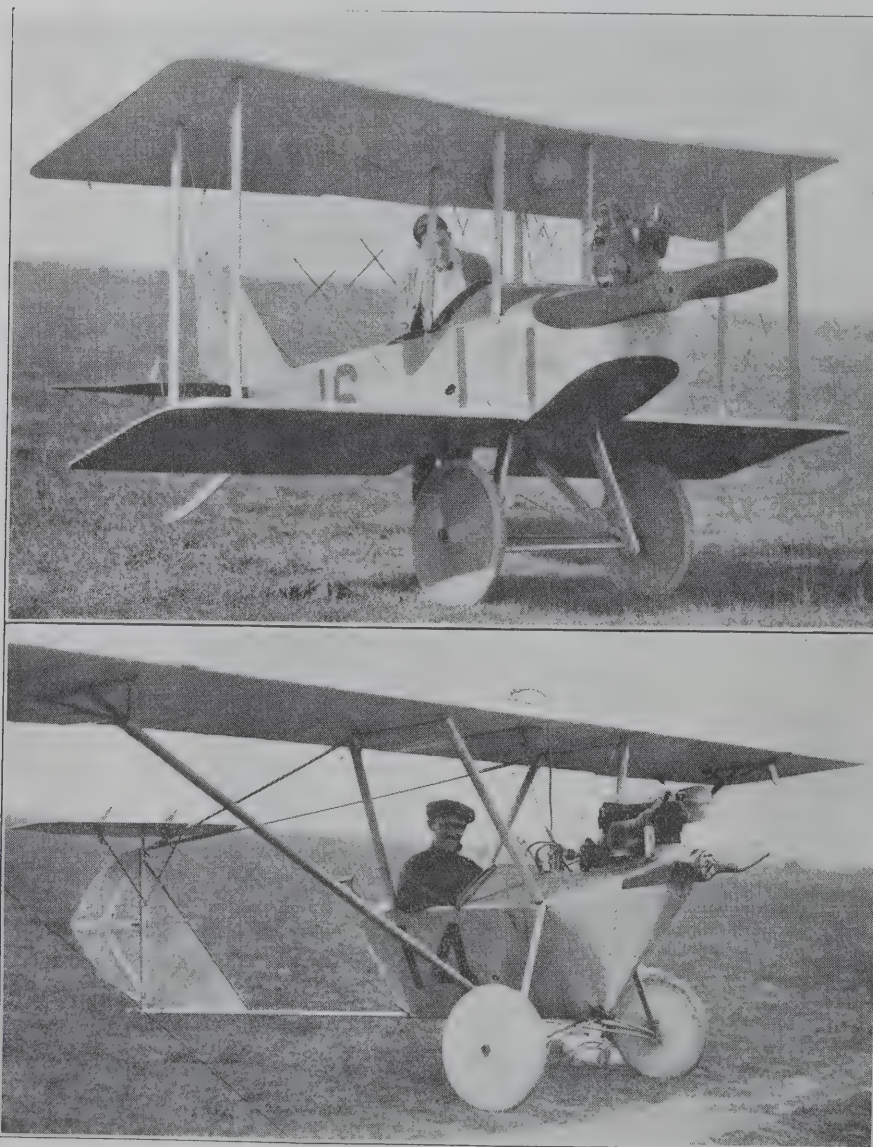
MORE AMERICAN LIGHT AERoplanes.—Top, the Mix Flying Army of 12 ft. span and 84 sq. ft. wing area. The engine is an eight-valve Indian. The total weight is said to be 360 lbs.

This particular machine does not appear to have flown with any success, and from its general appearance it seems unlikely that it should do so.

Below is a machine nicknamed "Flying Bath-tub" and designed and built by Mr. Dormoy, an employee of McCook Field, the works of the Engineering Division of the U.S. Army Air Service. The object in view of the designer was simplicity and cheapness of construction. This machine has a span of 24 ft. and 85 square feet of wing surface for a loaded weight of 425 lbs. The engine is the four-cylinder Hendershot, weighing 125 lbs.

The wing is timber framed, but the tail booms, struts and nacelle structure are of steel tube. The machine finished second in the race for the Dayton Daily News Race and was given a third prize in the Speed and Efficiency race at Dayton.

The tail-boom type of construction has certain definite advantages for light aeroplanes where cheapness and simplicity are of more importance than performance, but it would seem that this type is adopted the pusher form has advantages over the tractor.



(Photographs by the U.S. Army Air Service.)

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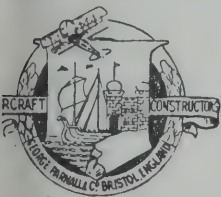
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 14; Tuesday, 12; Wednesday, 12; Thursday, 14, Friday, 15; Saturday, 13; Sunday, 5.

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London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 45, passengers 177, freight 9 tons.

AIR UNION:

Paris—London: Machines 21, passengers 66, freight 9 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 11, passengers 26.

DEUTSCHE AERO LLOYD:

Berlin—Amsterdam—London: Machines 7, passengers 15.

Total number of trips by British machines: 46, carrying 178 passengers. Foreign machines: 39, carrying 107 passengers.

Comparative Figures:

For week ending Nov. 9:

Machines, 85; Passengers, 285; Crews, 106; Total personnel, 391.

Corresponding week, 1921:

Machines, 71; Passengers 167; Crews, 107; Total personnel 274.

Corresponding week, 1922:

Machines, 45; Passengers, 160; Crews, 73; Total personnel, 233.

Corresponding week, 1921:

Machines, 67; Passengers, 96; Crews, 99; Total personnel, 195.

Corresponding week, 1920:

Machines, 52; Passengers, 79; Crews, 63; Total personnel, 142

Croydon Notes.

A very much greater regularity than has been the rule in past years at this season is now being maintained on the Continental service.

Fog was very prevalent on Wednesday round about Croydon and only one out of six machines on the inward route managed to reach the aerodrome. This was a D.H.34 piloted by Lt.-Col. Minchin who was enabled to locate the aerodrome by an appropriate Fifth of November firework display got up for his benefit, and also by the Strontium beacon. Of the other five machines, some landed at Lympne and others at Penshurst.

On Tuesday Mlle. Finet made a parachute drop from the Surrey Flying Services Avro to demonstrate a Guardian Angel parachute. As this parachute is of the type which depends for its opening on an attachment to the machine the test was of more academic than practical interest from the Service point of view.

The Surrey Flying Services have now taken over the old Airco aerial photography department. They have also recently taken a series of some of the finest and clearest photographs of London that one has ever seen. Some of these will be reproduced in forthcoming editions of THE AEROPLANE.

The Aircraft Disposal Company Ltd. are very busy and besides the engine to which reference has been made recently, some other very interesting innovations in machines are being made.

Mr. C. D. Barnard passed through the aerodrome on Thursday on a D.H.9 with one passenger, bound for Marseilles, thus helping to shorten the route to the East.

The Amsterdam-Batavia Flight.

On Nov. 6, Mr. Van der Hoop, who is attempting to fly from Amsterdam to the Dutch East Indies on a Fokker F.VII commercial monoplane (360 h.p. Rolls-Royce Eagle IX engine) arrived at Baghdad and on the following day he left for Basrah where he arrived later in the day. On Nov. 8 he left Basrah for Bandar Abbas where on landing he was given a great welcome and offered every assistance by the British Consul. The machine was in perfect condition, and after a short stay Mr. Van der Hoop left for Charbar. Of the 15,900 kms. that separates Amsterdam from Batavia, Mr. Van der Hoop has now covered 7,100 kms., a little less than half-way.

On Nov. 9 he left Bandar Abbas for Karachi, arriving there at 17.30 hours. The arrival was much earlier than was expected, consequently only a group of R.A.F. officers was present to receive him. Mr. Van der Hoop, Lieut. Poelman and Mr. Van den Broeke worked until midnight on the machine and at 07.00 hours the next morning they left on the next stage of their journey.

The Rolls-Royce Eagle IX engine has given absolutely no trouble since leaving Amsterdam.

Doing What the Romans Do.

[NOTE:—This is set in small type so that the Editor, who has his newly-acquired horn-rimmed spectacles, will not see it, at the top of the paper.—G. D.]

There is a pathetic story of a young wife saying good-bye to her husband as he was starting off on a business trip to Italy. The train was about to start she clutched him by the arm and whispered shyly, "John, dear, when you're in Rome *don't do* the Romans do."

If only the staff of THE AEROPLANE had given the same advice to the Editor before he left for the States! And now for a few weeks we are condemned to SHIPS.

To the hundreds of people who have written, telephoned or come to one personally and to the deputation who came to this office to protest against the awful menace of the word "ship" which to mean "aeroplane," one can only ask them to be patient. The Editor is very pleased with himself over the acquisition of the word and is also rather touchy on the subject. This touchiness is of course born of guilt.

History, we are frequently told by the Editor, always plays its part, and two parallel cases at once suggest themselves to his mind.

It may be remembered by those who are well acquainted with the history of Pip, Squeak and Wilfred that some months ago the Editor got hold of a new word "Lully," which was presumed to mean "lovely." He also was very touchy about it and at the time it was a considerable stir. Gradually the use of the word died out and now it has disappeared altogether.

Then there is the famous case of Kipling's Bandar Log, the name of the tribe, who, when they picked up anything new ran it to death in a few hours and then forgot it for ever.

The Editor knows that he would be the first to decry the English language in anyone else and so doubtless it is sufficient to leave him to his own conscience, for contrary to the prevailing idea he has a small conscience which only reacts in a cataclysm.

The Staff can of course retaliate by using "anticipate" to mean "expect," by splitting their infinitives, and using other means to offend Editorial feeling. And the awful thing is that they must be driven to it by the Editor himself.—G. D.

PERSONAL NOTICES.

DEATHS.

BOUSFIELD.—On Oct. 2, as the result of a flying accident, Bousfield, Flt. Off. No. 14 (Army Co-operation) Sqdn., R.A.F., Palestine.

[Mr. Bousfield was at Uxbridge, Grain and Eastchurch in 1922 was posted to No. 45 Sqdn., Iraq, in February, 1922. In January 1923, he went to No. 4 F.T.S. at Abu Sueir and was posted to No. 14 Sqdn. last January. He was a qualified Air Armament Officer and was especially experienced in the design and use of machine guns. His knowledge was such that he should have had longer the promotion for which his length of service qualified him. One who knew him well have never been able to understand why he was held back in a junior rank.]

GREBBY.—On Nov. 4, at Geneva, of pneumonia, Lt. Reginald Grebby, D.F.C., aged 29 years.

QUINLAN.—On Nov. 1, killed in an aeroplane accident at Darnley, India, Flt. Lt. Arthur Francis Quinlan, No. 5 (Army Co-operation) Sqdn., R.A.F.

[Flt. Lt. Quinlan was posted to No. 5 Sqdn. in September of the year from the School of Army Co-operation at Old Sarum. He was promoted to the rank of Flt. Lt. in January, 1922, after several years at the R.A.F. Depot, Uxbridge. No. 5 Sqdn. is equipped with Fokker Fighters. At the time of the last R.A.F. Pageant Mr. Quinlan was detailed, on account of his knowledge of French, to escort the one of the Service d'Aviation Militaire who visited us on that occasion. One knows that those officers will much regret to hear of his death.]

FORTHCOMING MARRIAGES.

MAYO—MERRYLEES.—The marriage between Major Robert Mayo of the late Dr. James Mayo, I.L.D., of Cambridge, and of Mrs. Mayo, of Burdyk Lodge, Seaford, and Thorva Eyles, younger daughter of the late W. E. Merrylees and of Mrs. Merrylees, of 7, The Gardens, W.8, will take place quietly on Nov. 24.

VIENER—KEATCH.—The engagement is announced between Rev. Harry Dan Leigh Viener, C.B.E., M.A., K.H.C., Chaplain-in-Chief R.A.F., late Chaplain R.N., son of the late Mr. and Mrs. J. Viener, of Blackpool and Poulton-le-Fylde, and Violet Margaret, second daughter of Mr. and Mrs. P. E. F. Keatch, of Twickenham, London, India. The marriage will take place quietly in the New Year.

MARRIAGES.

COCKMAN—RUTTER.—On Nov. 5, at St. Andrew's Cathedral, Singapore, Herbert James Cockman, D.F.C., Malayan Civil Service, son of Mr. and Mrs. G. H. Cockman, to Mary Campbell, only daughter of Mr. H. C. Rutter, J.P., and Mrs. Rutter, Hazelwood, Morden.

DYET—BERRY.—At 5, Whitehill Gardens, Dennistoun, Glasgow, Nov. 4, John Dyet, T.F.R.O., late Scottish Horse, attached R.A.F., elder son of Gilbert Dyet, M.P.S., and Mrs. Dyet, 9, Mount Street, Shawlands, to Mary Eleanor Berry, M.B., Ch.B., daughter of Mr. and Mrs. Berry, 5, Whitehill Gardens, Dennistoun.

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Edited by
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Vol. XXVII. No. 21.

SIXPENCE WEEKLY.

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THE NEW FLOTILLA.



AT BALTIMORE:—Torpedo Craft of the U.S. Navy at their moorings off Bay Shore Park. The blunt-nosed ships are Douglas biplanes similar to the Round-the-World craft. The second from the right is a new Curtiss torpedo-dropper. And a P.N.7. flying boat built by the Naval Aircraft Factory at Philadelphia is seen in the middle back-sea—(Back-ground hardly seems the right word here). They indicate what will constitute flotilla warfare in the future.

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ON A VISIT TO AMERICA.—V.

THE BALTIMORE SEAPLANE MEET.

The third great event which occurred during the very pleasant period which one spent in the United States was the Baltimore Seaplane Meet. As everybody concerned with aviation knows, the original intention was to hold the competition for the Schneider Trophy at Baltimore. The Flying Club of Baltimore to which the organisation of the Meet was delegated by the National Aeronautic Association spread itself lavishly over its task and made arrangements which would certainly have produced an historic meeting. Only a few weeks before the meet was due came the news that the Italians had decided not to send their machines. Then three weeks before the meeting the last British representative crashed itself at Felixstowe and the Flying Club of Baltimore was left high and dry without the chief attraction of the meeting. At first it looked as if holding the meeting would be like a banquet without the Prince of Denmark or at any rate Cyrano de Bergerac without his nose. In fact it seemed that meeting would go as flat as the average American aircraft plant under the Government's competitive buying system. However the Americans, with that undefeatable spirit of initiative which made "The Covered Wagon" possible, decided to go ahead with the meeting. The Flying Club of Baltimore had committed itself to the meet by extensive advertising and so the U.S. Navy came to its rescue and, to use an American phrase, staged a party which has certainly never been approached as a public display of seaplanes.

SPORTSMANSHIP.

Not only did the U.S. Navy provide practically the whole show but in a splendid sporting spirit it washed out its right hand and a representative seaplane to fly over the Schneider Trophy and claim a second win on the Trophy. If the Navy had done that it would only have had to win the Trophy once more to make it the property of America. As it is, America only stands in as having won the Trophy once as against two wins for England and two wins for Italy. One has never come across a finer example of sportsmanship. In anyhow the result was that practically everybody who is interested in American aviation foregathered at Baltimore on Friday Oct. 24 in readiness for the display next day. Also there came to Baltimore sundry aliens such as the British Consul and Air Attachés and the Officer commanding the Royal Canadian Air Force together with another leading Canadian officer and Mr. Folland of the Gloucestershire Company and Mr. Broad of de Havillands and Mr. Dawson of the Fairey Company and others. Baltimore is a good place. It is so far South of the Mason-Dixon Line as to have the real Southern touch. It is impossible to define what that means. One merely feels it in the atmosphere. None can say that the South is more hospitable than the North for any friendly English-speaking alien. America finds herself continually embarrassed by the hospitality of American nationals. Perhaps one can best describe it by saying that it is just the difference between Yorkshire and Yorkshire. Southerner and Northerner is an admirable in his own way. The friendliness of Baltimore can perhaps be illustrated by the experience of a New Yorker who on arrival was met by a kindly inhabitant who offered forthwith to "put him up" a guaranteed reliable bootlegger. For oneself one had need of such a commodity, for the open-house hospitality of the citizens of Baltimore made it unnecessary during one's stay. But brief as that visit was it was long enough to show that Baltimore does know how to organise an air meet. That in Chesapeake Bay is the ideal place in which to hold seaplane competitions of any kind. Incidentally it also knows how to produce and print a proper programme for a seaplane meeting. One recommends the specimen to the study of the Committee of the Royal Aero Club.

THE FLYING CLUB OF BALTIMORE.

The prime mover of the whole show was Mr. R. W.

Alexander, President of the Flying Club, who in a preface to the programme says that the Club "was organised by the association of a large number of our local aviators . . . with the co-operation of the business men of Baltimore. The purpose of the Club is to preserve the experience of the wartime aviator and to assist the bringing into existence of the commercial phase of aviation."

The Club possesses an excellent aerodrome in Logan Field, which is one believes the first aerodrome established for U.S. Reserve Aviators. The site of the field was presented by Mr. W. Frank Roberts who is the Chairman of the Club. Judging by the amount of flying done by paying passengers in civilian flying boats operating from the shore during the seaplane meet the public seem to be quite ready for commercial flying when opportunity offers.

THE NAVY'S HELP.

Some idea of the way in which the whole affair was run may be gathered from the fact that the U.S. Navy had placed at the disposal of the Club for the transport of guests from Baltimore to Bay Shore Park where the meeting was held. And a most elegant lunch was served on board to the fortunate visitors. The result of all this proffered hospitality was that when the *Cheyenne* left the dock she looked a great deal more like an excursion steamer than like one of Uncle Sam's warships.

The only unfortunate thing was that in designing Chesapeake Bay Providence forgot to make it deep enough for warships. The result was that the *Cheyenne* had to lie several miles out from the pier, which was the winning post and control point of the meeting, and the people who stayed on board had a rather distant view of the flying. But to make up for that the U.S. Navy provided a ferry service of submarine-chasers, something like our M.L.s., which brought visitors as near shore as they could go, whence they were transferred in small motor-boats to the pier head.

Mr. Alexander himself took charge of the British Service visitors and including Mr. Lester Gardner of *Aviation* and oneself in the party drove us down by road to Bay Shore Park.

This park belongs to the Company which runs the Baltimore street cars and is the terminus of their line. It is fitted out as a sort of amusement park and has a long pier or rather causeway, the head of which pier was the Holy of Holies of the meeting including the judges' box and the timekeepers' machinery and so forth.

The beauty of this arrangement was that the organisers of the meeting were able to charge gate money for admission to some miles of beach so that some part of the expenses of the meeting were covered. There is only one dead-end road to this beach so that there was little to be seen by motorists who hoped to get a free view of the show.

If and when a big contest is held there the Club ought to be able to make some of the money which it deserves as a reward for its initiative in forming the Reserve Station and for its trouble and expense in organising the meeting this year. One hopes that the National Aeronautic Association will allocate the Schneider Competition to Baltimore next year in recognition of its good work.

Even though New Yorkers might find Port Washington on Long Island more convenient there certainly is an additional advantage in having a meeting at Baltimore, situated as it is between Washington which is the headquarters of everything and Philadelphia where is the Navy Yard and the Naval Aircraft Factory.

FLYING AT BAY SHORE.

So far as the actual competitions which were flown at Bay Shore are concerned there is little of interest to describe, because after all one flying boat in the air is very much like another. What was really of interest, at any rate to us alien visitors, was the display put up by the U.S. Naval Air Service. It amounted in fact to a Naval Air Review and gave us a very fair idea of the state of aviation in the U.S. Navy. Looking at it from this point of view one wishes to congratulate the Bureau of Naval Aeronautics on the excellent

flying of the Navy pilots and on the way in which their seaplanes and engines are maintained and handled.

A part of the original programme was an exhibition of deck-landing on the aircraft carrier *Langley* and an exhibition of catapulting seaplanes from the deck of the *U.S.S. Concord*. Unfortunately these ships like the *Cheyenne* were unable to approach Bay Shore because of the shallowness of the water. One gathers that the *Concord* did in fact launch a machine from her catapult but nobody was able to see it done.

Incidentally it is said that the U.S. Navy has a new type of catapult which is operated by gunpowder or cordite instead of by purely mechanical means or compressed air. The precise design and operation of this catapult is kept very secret, but if it turns out to be as successful as it is said to be one hopes that the secret of it will be imparted to the British Fleet Air Arm for us to use in co-operation with the U.S. Navy in the Pacific.

Talking to the U.S. Naval Air Service people one found that they suffer from almost the same trouble in deck-landing that we do. Machines will insist on falling over the edge of the deck into the ditch instead of sitting in the middle of it and grabbing hold of the wires. Also pilots doing a stand-still landing do occasionally drop their machines onto the flaps which hold the wires off the deck (the Americans call them "fiddle-bridges"). The result is a certain number of mechanical casualties in the machines, especially in amphibians.

So far as one could discover neither Service has very much to learn from the other and the two of them are apparently far ahead of the Naval air services of any other country. The pilots of the U.S. Naval Air Service are distinctly of the first class. We had a fair experience of the best of their speed pilots when they came and lifted the Schneider Trophy at Cowes last year but Baltimore provided one's first opportunity of seeing American seaplane pilots performing in numbers.

Having seen the pilots of all European nations at work one can safely say that there are no better pilots than the Americans. The day of the meeting was almost a flat calm so one had no chance of watching them at work in a sea-way but the way they got their machines off and put their machines onto the water and the way they flew in formation showed that they can handle their machines as well as the best.

U.S. NAVAL AIRCRAFT.

Quite a pretty display was given by two formations each of three Douglas torpedo craft. They got off the water well together, dropped their torpedoes almost simultaneously opposite the pier head and alighted in perfect formation.

Among the torpedo craft one particularly liked the new Curtiss general-service seaplane with the Curtiss D.12 engine. It is a very clean-lined ship and evidently handles well. Having the lower plane of greater span than the upper plane looks a little peculiar at first but this is done, one gathers, to lighten the wing structure. One has not the actual performance figures for this machine but one is told that it is faster and lifts more petrol than do the corresponding British machines when carrying the same weight of torpedo. The general lines of the machine betray the hand of Mr. "Bill" Gillmore, the design chief of the Curtiss Company, and for all their size the machines are evidently relatives of the World's Record Speed craft, both seaplane and land machine, which have been built by the Curtiss Company. Which seems to show that there is something in air racing after all.

A U.S. Naval aircraft which is practically unknown in this country is the Vought, an advanced training biplane largely used by the U.S. Navy. These machines were designed in 1917 and 1918 and have the Wright E type engine which is a modification of the Hispano-Suiza. With this engine they have a performance which is better than that of the S.E.5a. Mr. Chance Vought, the designer and constructor, is happy in having had the bulk of the Navy's orders during the last few years.

Another interesting seaplane at Baltimore was the Vought flying boat. It is a species of F.5 but with single bay wings and driven by two Wright T-3 engines. They lift quite heavy loads, for the wings although 25 feet less in span than those of the F.5 type are of high lift section and justify their name. The T-3 engines, which have now passed all the severe type-tests imposed by the U.S. Navy, give them a very good performance.

Just by way of giving the public some impression of the two Curtiss racing seaplanes (C.R.III with a D.12 engine) one of which captured the Schneider Trophy at Cowes last year were brought out and flown over a course which will have been the Schneider Trophy course. One of them was flown by Lieut. Ofstie put up a record speed over 100 kilometres of 175.8 m.p.h. He went on to 500 kilometres covering the distance at an average speed of 161.138 m.p.h.

The other one flown by Lieut. Cuddihy dropped out keeping the pace going over 200 kilometres and did not turn up and down the three-kilometre speed course. His average record speed being 188.129 m.p.h. or 302.7648 kilometres per hour.

These figures of course are fairly startling for seaplanes but last year's Navy racer which had been fitted with fuel tanks and new wings at the Curtiss Works on Long Island tested roughly over Long Island Sound a fortnight or so before the race and registered a speed of 227 miles per hour. As this was done with all kinds of projecting oil and water pipes and socket joints and tank filler-caps uncovered on an unstreamlined one imagines that the actual speed of the machine is somewhere about 240 m.p.h.

A very interesting seaplane which was at Baltimore was the Loening air yacht which has not been seen in this country. It is a pusher monoplane flying boat with a very comfortable cabin arrangement built on top of the boat just in front of the engine. The fuselage between this cabin and the tail unit is very low and narrow so that when it is on the water it is practically submerged. The result is that the machine at a distance looks like a conning tower between two wings followed by a tail entirely on its own. They appear to be two separate units, like paupers without any visible means of support. With its Liberty engine the machine is very fast and has a speed one believes of something like 120 m.p.h.

PARACHUTES.

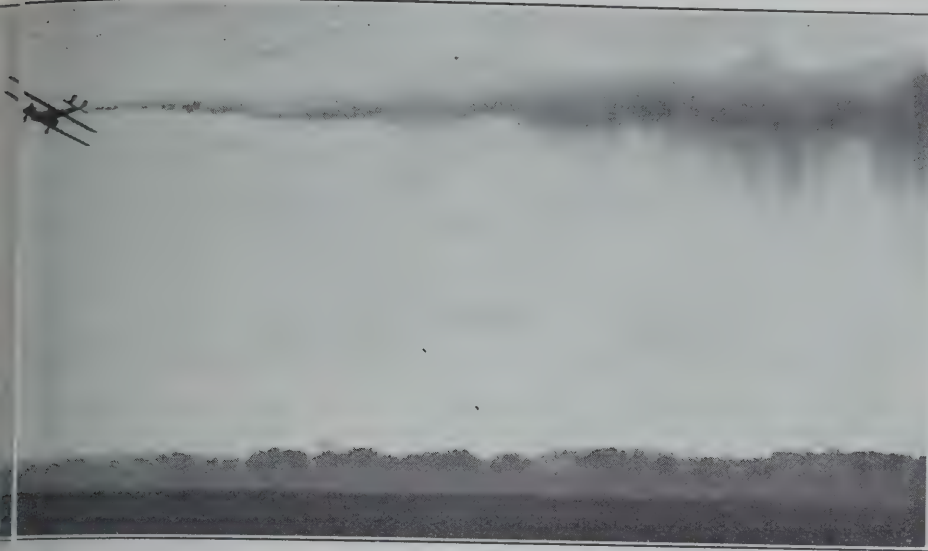
Apart from the actual flying at Baltimore there were very interesting events. One was a parachute race in which three enlisted men (that is to say non-commissioned men) of the U.S. Army dropped simultaneously from the fuselage of a Martin bomber.

In America they use pack parachutes which are absolutely independent of the aeroplane. One believes firmly that this is the only type of parachute which can be of the slightest use in accidents. A parachute which is attached in any way to the aeroplane is liable to get tangled in the wreckage if the machine breaks or is shot to pieces.

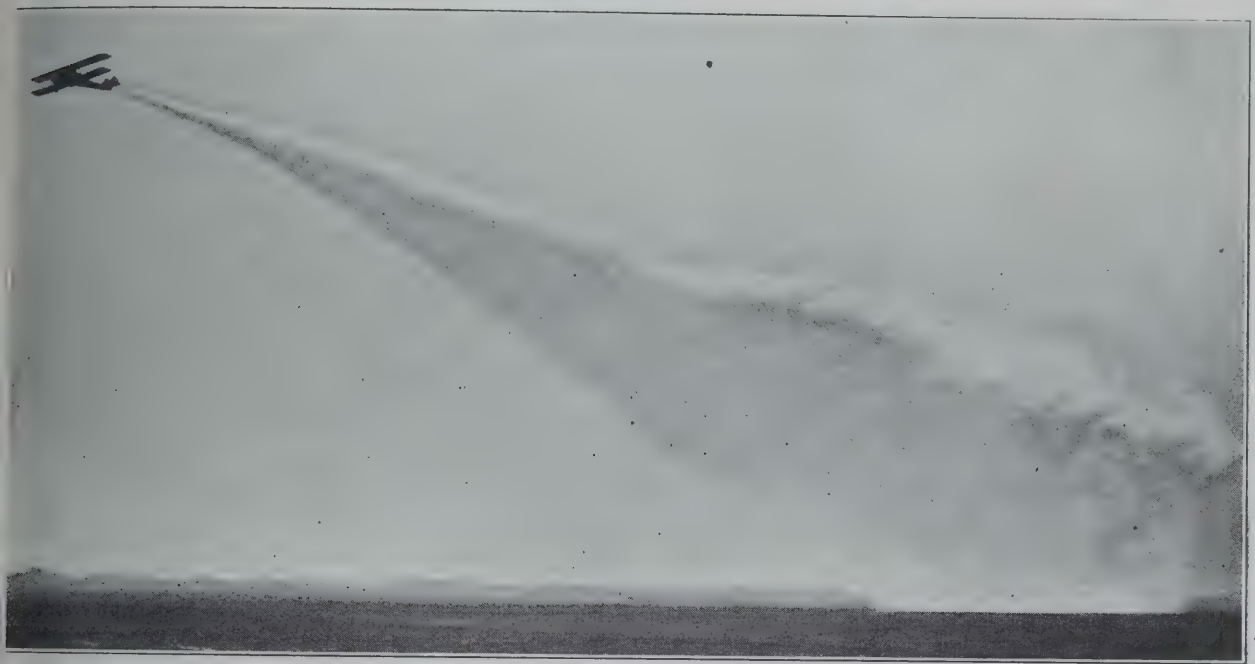


AT BALTIMORE.

The Pier at Bay Shore Park, which was the First Class enclosure at the Meeting. The amusement park and buildings may be seen in the background. The picture was taken from the Judges' box by Mr. Earle Osborne. At the pier-head the water is only a couple of feet deep.



THE 'SMOKE SCREEN.—
Here is seen the development of the Dropping Smoke-Screen as practised by the United States Flying Services. In the first picture a Martin Bomber is shown at Dayton. It will be seen that the smoke at first drops like rain. In the second the screen is seen developing. It will be noticed that as the smoke reaches the ground it lies in a white line. In the third picture one of these screens is seen rolling in from the sea at Baltimore, blotting out the torpedo-craft shown in the frontispiece of this issue.

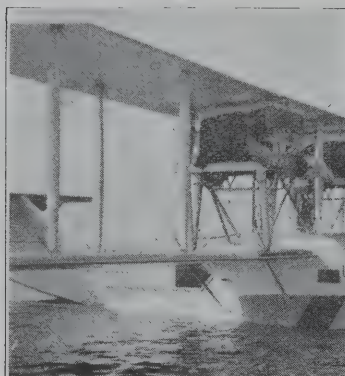


the American parachute, which is built by Mr. Irving of alo, the parachute itself is rolled into a pack on which user, whether passenger or pilot, sits like a cushion. When wants to descend he merely walks over the side of the craft and falls. When he thinks he has fallen far enough pulls a string which releases a flap from which a spring ejects a small pilot parachute which in its turn extracts big main parachute.

is certainly an emotioning sight to see three bodies falling several hundreds of feet out of an aeroplane apparently

without anything to stop them. The parachute opens within a very few seconds of the pulling of the string of the pilot parachute and so far as one could discover there have been no instances of the parachutes refusing to open.

One of the parachutists at Baltimore fell into the Bay a couple of hundred yards or more from the beach. Naturally all the strangers to the place expected to see motor-boats dash to his rescue. To our surprise nobody budged and a second or two afterwards the parachutist rose from the sea and stood only knee-deep in it. Such is its shallowness.



AT BALTIMORE.—(Top) The standard U.S. Navy F.5. flying-boat and the Loen air-yacht. (Middle) The new Curtiss general service seaplane. (Bottom) Douglas torpedo-carrier, practically identical with the World-Cruisers.



THE SMOKE SCREEN.

The other really impressive show was the dropping smoke screen which had already been shown to the public at Dayton. The wind was blowing very gently on-shore at the time and one of the Martin Bombers dropped a perfectly clean level screen from a height of about 700 to 800 feet.

As the screen was dropped everybody admired the way in which it blotted out the distant view. Then as it drifted toward the land people began to get quite scared of it. Some of them evidently thought that the smoke was poisonous.

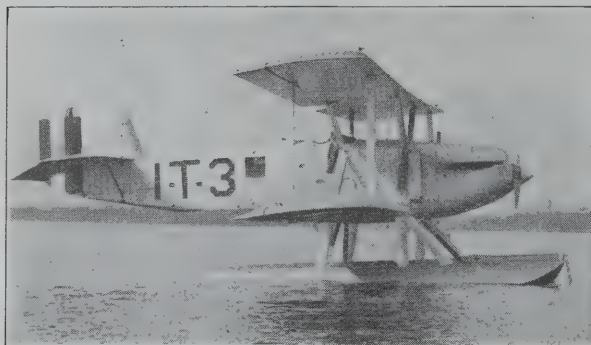
As the great curtain of smoke came slowly nearer the pier with the sun shining on it and the smoke forming great billows it really was a thoroughly terrifying sight, its advance was so slow and solemn and utterly inevitable. The wave came along with beautiful regularity looking almost solid. The smoke gradually passed along the pier to the

ships above the smoke cloud so that torpedo craft carried some sort of a line on their targets.

It is said that it ought to be possible to mingle mustard gas with this smoke-screen and so not only blind a fleet of an army but actually put it definitely out of action.

It strikes one that such a method ought to be particularly efficacious in our little wars on the Indian Frontier in Iraq and in Africa and it should be equally useful to the Spaniards in their war with the Moors.

One knows that dropping gas shells from aeroplanes is simply not worth while for it is impossible to compress enough gas into a shell to make it worth while dropping. On the other hand an actual smoke-screen laid across a fleet would reach the wily Pathan in his lair no matter how he might try to escape. The future of this particular branch of chemical warfare ought to be studied very carefully by



thousands of people who, as it is said in the Bible, "Sat along the sea shore for multitude" and they also were fairly badly frightened.

After the cloud had passed inland it was apparently raised by the hot air from the sandy country a mile or so from the beach and on reaching a height of several hundreds of feet it seemingly reached a drift in the opposite direction, for it passed out to sea again right over the heads of the crowd and hung around gradually dissipating for a couple of hours before it finally disappeared from the sky.

One is convinced that this dropping smoke-screen has great possibilities in the next war. The ordinary smoke-screen, as we know it, is dropped in chemical form onto the ground or onto the water and thence rises to a height which is only determined by its own quality and the state of the atmosphere. Consequently a smoke screen of that sort dropped across a fleet hides the ships completely.

The beauty of the American smoke screen is that unless it hits a patch of really hot air it does not rise above the point at which it is laid. Consequently it is quite possible to run a low smoke screen along to windward of a fleet and blot out the thousands of people on decks or in the conning towers while at the same time leaving the mastheads of the

Fighting Services in general and by the Royal Air Force in particular.

THE RETURN VOYAGE.

Our little party of Britishers returned to Baltimore on the *Cheyenne*, Captain Fulton according to some of us the privilege of accompanying him in the conning tower whence we had an excellent view of the beauties of Chesapeake. Unfortunately it was dark by the time we reached the *Langley*, near which was lying also the *Patoka* the ship which had been erected a mooring mast to which the *Shenandoah* had been moored with considerable success, the first time one believes that a big airship has been moored to a sea ship.

A NAVY YARN.

Apropos the *Shenandoah* one must really tell against the kindest of hosts, the U.S. Navy, a story which one heard of the *R.M.S. Aquitania* coming back to England. At the time of the Baltimore Meeting the *Shenandoah* was making her way back from the Pacific coast whither she had gone not exactly to show the flag but one might say to show the bag (being a gas-bag ship) to those millions of Amer-





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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

citizens who live in constant expectation of an attack by the Japanese.

Having reached the Pacific coast at San Diego, Cal., on her way out the *Shenandoah's* ultimate objective was Seattle, Wash. Knowing the route of the ship the citizens of Tacoma, Wash., sent a message to the U.S. Navy Bureau asking whether the *Shenandoah* might fly round Tacoma so as to let the citizens see one of their guardian angels.

The Navy Bureau replied politely that unfortunately the *Shenandoah* had to go direct to her mooring mast at Seattle and could not spare time to visit Tacoma.

One only appreciates the joke when one learns that the Seattle mast is so called because Seattle is the nearest big city and that the mast is in fact thirty miles from Seattle and six miles from Tacoma so that the ship had to go over Tacoma anyway and all the city wanted was that she should do a couple of turns over the city before going a few times her own length out to the mast.

Against this jest one can offer the U.S. Navy the information that the Mercator charts of the World issued by the British Admiralty on which to indicate the progress of the various World Flights this year do not even show the city of Seattle, the reason being that the said charts were printed in 1870, since which date apparently the British Navy has had no need to improve its knowledge of geography.

THE EVENING OF THE DAY.

When the *Cheyenne* docked in Baltimore Harbour a telephone line was cast ashore while the horde of passengers was disembarking, and for some reason to do with electric connections the line was temporarily hitched round a telephone pole. Whereupon an Englishman in the party asked in the best and most fatuous English manner whether it was customary for American battleships to tie themselves to telegraph poles. It took some few moments for his American friends to realise that he was not quite an imbecile.

After the aeronautical party had reassembled at the Southern Hotel at Baltimore the ever-hospitable Mr. Alexander entertained a crowd of guests at the Country Club, whither some forty of us were transported in a motor-bus as long as a wet Sunday. En route we "stopped off" as the Americans say at the house of another hospitable Baltimorean

where we were given such refreshment as the law of the United States does not approve in public, and at the Country Club we were shown that the South is still itself.

The feminine youth and beauty of Baltimore looked exceedingly well set off against the elegant blue and gold white evening dress of the U.S. Navy, a uniform which has a curiously Eighteenth Century style which gives it rather a touch of romance.

The more frivolous members of the aeronautical community had a party of their own on the roof of the Southern Hotel where, it seems, the entertainment was distinctly of a nature which most flourishes under prohibition. A prominent American citizen remarked "After all prohibition is better than no liquor at all."

The ends of the two parties synchronised in the hotel scene where in the small hours of Sunday morning. Altogether Baltimore treated its visitors more than well and one hopes at some future date to renew one's acquaintance with this delectable city.—C. G. G.

THE AIR MINISTRY.

The Prime Minister has appointed Sir Philip Sassoon, B.C.M.G., to be Under-Secretary of State for Air.

Sir Philip Sassoon is the third baronet of his line. His residence is at Lympne, right alongside the aerodrome. During the War 1914-18 he was Private Secretary to Field Marshal Sir Douglas Haig and so came closely in touch with Sir Henry Trenchard when he commanded the R.F.C. in France and with Sir John Salmond when he commanded the R.F.C. and later the R.A.F. Sir Philip is a cousin of Mr. Ellice Sassoon who was a prominent pioneer of aviation in England in 1900 and 1911—and who was primarily responsible for starting THE AEROPLANE newspaper.

Sir Samuel Hoare, Secretary of State for Air, has appointed Mr. C. L. L. Bullock to be his principal private secretary and Flt. Lt. G. W. Dobson and Mr. Paul E. Paget (unpaid) to be his assistant private secretaries. He has further appointed Sir Geoffrey Butler, M.P., to be his Parliamentary private secretary (unpaid).

Sir Philip Sassoon, Under-Secretary for Air, has appointed Mr. P. J. Oldfield to be his private secretary.



LONDON FROM THE AIR.—The white building in the centre to the left of the "Daily Mail" sign is Bush House. Behind that runs Kingsway, with the Air Ministry on the right corner and the Shell-Mex building opposite. Australia House is on the right of Bush House and the corresponding building on the left is the Gaiety Theatre and Marlborough House. On the top of this can be seen the masts supporting the aerial of 2LO. Somerset House is seen in the foreground and other buildings are those of the "Morning Post" in left bottom corner, the Strand and Aldwych Theatre and the Waldorf Hotel. The church in front of Bush House is St. Mary-le-Strand. The rural scene behind the Air Ministry is Lincoln's Inn Fields, in which some hard tennis courts can be seen. (Photograph by the Surrey Flying Services.)

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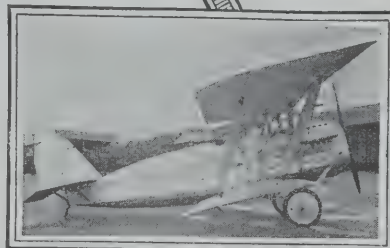
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THE ROYAL AIR FORCE.

The London Gazette.

Nov. 11.

GENERAL DUTIES BRANCH.—The following are granted perm. comms in the ranks stated (Nov. 12):—*FLY. LTS.*—F. R. Alford, M.C., J. H. O. Jones. *FLG. OFF.*—W. A. B. Buscarlet (Lt., R.A.).

PLT. OFF. H. V. Kerckhove, M.C., is promoted to the rank of *FLG. OFF.* (Oct. 15). The following *PLT. OFFS.* on probation are confirmed in rank (Sept. 15):—E. A. H. Fisher, R. A. Ford, H. R. Lowry.

FLT. LT. A. C. Sanderson, D.F.C., is placed on half-pay, Scale B. (from Nov. 14 to 25, inclusive); *FLG. OFFS.* T. M. Shields, D.F.C., and A. F. McC. Riggs, M.C., take rank and precedence as if their appointments as *FLG. OFFS.* bore date July 25, 1924 (reduction to take effect from Sept. 15, 1924); *FLG. OFF.* J. Glover, takes rank and precedence as if his appointment as *FLG. OFF.* bore date Aug. 2, 1919 (reduction to take effect from Oct. 18, 1924); Group Capt. H. P. Smyth-Osbourne, C.M.G., is placed on the retired list on account of ill-health, and is granted the hon. rank of Air Commodore (Nov. 12).

STORES BRANCH.—The following are granted perm. comms. for accountant duties in the ranks stated (Nov. 12):—*FLY. LT.*—A. W. P. Phillips, O.B.E. (Lt.-Cdr., R.N., retd.). *FLG. OFF.*—J. J. T. Rose.

Sq. Ldr. H. E. Rowley is removed from the R.A.F. (Nov. 12). The rank of *FLT. LT.* W. E. Fisher, M.C., is as now described, and not as stated in *Gazette*, Nov. 4.

RESERVE OF AIR FORCE OFFICERS.—*FLT. LT.* D. A. Stewart, M.C., D.F.C., A.F.C., ceases to be employed with the Regular Air Force (Aug. 30) (substituted for the notification in *Gazette*, Sept. 2); *PLT. OFF.* W. Lowry is confirmed in rank (Nov. 6); *FLG. OFF.* F. W. Knox is transferred from Class A to Class C (Nov. 11); *FLG. OFF.* W. F. P. Williamson relinquishes his comm. on account of ill-health (Nov. 12). The following *FLG. OFFS.* relinquish their comms. on account of ill-health, and are permitted to retain their rank (Nov. 12):—W. J. Rivett-Carnac, M.B.E., A. W. Higson.

MEMORANDUM.—Capt. S. H. Cleall, R. Irish Fus., is granted rank of Maj., R.A.F., on retirement from Army.

Appointments.

Week ending Nov. 17.

GENERAL DUTIES BRANCH.—Squadron Leaders W. V. Strugnell, M.C., to Engine Repair Depot, Egypt, 18/10. E. R. Manning, D.S.O., M.C., to No. 4 F.T.S., Egypt, 20/10.

Flight Lieutenants M. L. Taylor, A.F.C., to Aircraft Depot, Egypt, 18/10. A. Latimer, W. A. K. Dalzell, and J. H. Winch, to No. 4 F.T.S., Egypt, 18/10. H. Dawes, M.B.E., to Station H.Q., Kenley, 10/11. G. Bowen, to No. 1 Stores Depot, Kidbrooke, 10/11. A. H. Wann, to School of Balloon Training, Larkhill, 11/11. R. S. Sugden, A.F.C., to No. 24 Sqn., Kenley, 17/11.

Flying Officers D. E. Shaw, to No. 1 School of T.T. (Boys), Halton, 14/11. H. F. Luck, to No. 1 Group H.Q., Kidbrooke, 10/11. N. Liddall, and H. Norrington, to Aircraft Depot, Egypt, 18/10. B. M. T. S. Leete, E. F. Haylock, and C. Sutton, to No. 208 Sqn., Egypt, 18/10. F. W. Long, to No. 47 Sqn., Egypt, 18/10. W. S. Allen, to No. 41 Sqn., Northolt, on transfer to Home. Estab., 19/11. A. H. H. MacDonald, to Armament and Gunnery School, Eastchurch, 4/11. M. J. Ducray, to No. 207 Sqn., Eastchurch, 4/11.

Pilot Officer J. F. Young, to C.F.S., Upavon, 14/11.

MEDICAL BRANCH.—Flight Lieutenant (Hon. Sq. Ldr.) (Medical) F. W. Squair, M.B., T.D., to No. 111 Sqn., Duxford, 10/11.

Flying Officers (Medical) A. Harvey, M.B., to I.A.A.D., Henlow, 10/11. J. B. Gregor and R. T. F. Grace, M.B., to Baghdad Combined Hospital, 18/10. I. P. McCullagh, M.B., to Station Commandant, Iraq, 24/10. S. G. Gilmore and R. H. Stanbridge, to Basrah Combined Hospital, 16/10. G. P. O'Connell, M.B., to Baghdad Combined Hospital, 19/10.

STORES BRANCH.—Squadron Leaders (Stores) I. Auker, O.B.E., to Air Ministry, 10/11. W. J. B. Curtis, O.B.E., to R.A.F. Depot, 10/11. H. E. J. Hewitt, to No. 1 Stores Depot, Kidbrooke, 10/11.

Flight Lieutenants (Stores) A. W. Turner, to H.Q., Iraq, instead of to Stores Depot, Iraq, as previously notified, 18/9. F. R. Wilkins, to Basrah Group H.Q., 16/10. H. Jones, to Aircraft Depot, Iraq, instead of to Stores Depot, Iraq, as previously notified, 18/9.

Flying Officers (Stores) W. J. Cleasby and J. Mahoney, to Stores Depot, Egypt, 18/10. H. F. Webb, to No. 6 Sqn., Iraq, instead of to Aircraft Depot, Iraq, as previously notified, 18/9. H. Sleight, to No. 99 Sqn., Bircham Newton, 17/11.

ACCOUNTANT BRANCH.—Flying Officer (Accountant) J. J. T. Rose, to No. 47 Sqn., Egypt, 22/10. Pilot Officers (Accountants) C. E. Aston, H. J. Titherington, K. E. M. Holmes, J. McL. Murray, C. F. Goatcher, C. Lorimer, and E. Smith, to R.A.F. Depot on appointment to perm. comms. as Pilot Officers (on probation) for course of instruction in Pay Accounting, 10/11.

The Fleet Air Arm.

The *Times* of Nov. 14 states:—

The aircraft-carrier *Eagle*, Capt. L. G. Preston, C.B., A.D.C., is ordered to return to Portsmouth at the end of December for docking. This will conclude her first period of service as aircraft-carrier in the Mediterranean Fleet, which she joined at Malta on June 7. The *Eagle* is to return to Malta not later than Mar. 1, 1925. A second aircraft-carrier is about to join the Fleet in the Mediterranean, the *Hermes*, Capt. the Hon. Arthur Stopford, C.M.G., which has been undergoing alterations at Portsmouth.

The *Times* of Nov. 17 states:—

It is notified by the Admiralty that the title "Fleet Aviation Officer" is in future to be substituted for "Fleet Flying Officer" to describe the officers employed on air duties on the staffs of the Commanders-in-Chief, Atlantic and Mediterranean Fleets. The date of beginning of the second course for pilots of the Fleet Air Arm will be Jan. 12, and officers selected will join No. 1 Flying Training School, Netheravon, on that date.

A Fleet Air Arm Accident.

The *Morning Post* correspondent at Weymouth in a communication dated Nov. 9, states:—

Thrilling rescues followed the wreck of a naval seaplane in Portland Harbour to-day. The machine was leaving for Portsmouth with

another seaplane, the latter carrying Rear-Admiral W. S. Nicholson Commanding the Portsmouth Submarine Division. There was high wind at the time, and the seaplane, flown by Wing Cdr. I. struck the mast of a coal hulk, smashing one of her wings and ing into the sea. The three other airmen in her were Sq. Kellaway, Sgt. Sarmer, and Cpl. Hall.

Strapped to their seats when the seaplane turned over, they all under water in a helpless condition. Harbour tugs and pinn from the Atlantic Fleet battleships raced to the rescue. Blue-jac jumped into the water and cut away the straps, releasing the flying men, one of whom, Sarmer, was unconscious. They were t on board the battleship *Royal Oak*, where Sarmer, who was suff from concussion, recovered. The other three were unhurt.

The seaplane was smashed up, but tugs have salvaged her and her into dockyard.

Wing Cdr. Reginald Bone, C.B.E., D.S.O., is the Off. Commanding the R.A.F. Base, Calshot, the establishment which includes No. 480 (Flying Boat) Flight and is himself a persistent aviator although he learned to fly several years before the War 1914-18. The Navy is to be congratulated being prompt in its action.

[One gathers that the account is reasonably accurate except for the omission of the fact that the collision with the n occurred because the pilot swerved to avoid another seapl which was crossing him. Also one gathers that the b jackets contented themselves with throwing lines and did themselves enter the water. Sarmer was revived by artific respiration after many hours.—E.D.]

R.A.F. Sports at Basrah.

The following is extracted from the *Times of Mesopotamia* Oct. 18, with acknowledgments:—

The Basrah Group Athletic Meeting took place on Oct. 17. Organising Committee were Major Atkins, M.C., The Rev. J. H. Still, *FLT. LT.* Hirst, *FLT. LT.* Brown, and *FLG. OFF.* J. M. Morris.

At the conclusion of the meeting Group Capt. I. T. Court, C.B.E., in a short speech referred to the success of the first at at Group Sports, a pleasure which was heightened by the fact Mrs. Macpherson had kindly consented to distribute the prizes (Macpherson was formerly Matron of the R.A.F. Hospital). He gretted that an Inter-Unit Challenge Cup had not yet material but added that it was more desirable in the interests of sport to one, and as he had said at the meeting held by the Armoured Company he would see that they got one.

THE RESULTS.

100 yards (Final).—AC.1. Marnock, J. (No. 3 A.C.C.). Time, 11 1/2. 1 Mile Team Race (Final).—(1) No. 84 Bombing Sqn. (A), (2) N A.C.C., (3) 84 Sqn. (B).

440 yards (Final).—AC.1. Travis. Time, 59 3-5.

Obstacle Race.—AC. Moses.

880 yards (Final).—AC.1. Clarke (Hospital).

Tug-of-War (Final).—Winners, 84 Sqn.

1 Mile (Final).—AC.1. Whatling, A. W. (84 Sqn.).

220 yards (Final).—AC.1. Travis, H. (84 Sqn.).

1 Mile Relay.—(1) 84 Sqn. (A), AC. Auchterlonie, Sgt. Dodge.

AC. Cook, AC. Travis, AC. Marnock.

Officers' Race, 100 yards Handicap.—Wing Cdr. Glynn, R.A.F.,

High Jump (Team and Individual Championship).—Indivi

Winner: AC.1. Meyrick, W. J., No. 3 A.C.C., height 4 ft. 10 1/2.

Winning Team, 84 Sqn. Aggregate height 14 ft. 3 in. Names

AC.1. Woodrow, G. L., I-AC. Winspear, R., AC.2. Bolton, H.

Long Jump (Team and Individual Championship).—Indivi

Winner: AC.1. Marnock, V. J., No. 3 A.C.C., length 17 ft. 6 1/2.

Winning Team, No. 3 A.C.C. Officers' aggregate length: 49 ft. 2 1/2.

Names: *FLT. LT.* H. J. Bowen, O.B.E., *FLT. LT.* L. V. Hirst, *FLT.*

S. D. McDonald, D.F.C.

Putting the Shot (Team and Individual Championship).—Indivi

Winner: AC.1. Travis, H., 84 Sqn. Distance 28 ft. 1 1/4 in. Win

Team: 84 Sqn. (A). Aggregate distance, 79 ft. 5 1/2 in. Names: *FLG.*

G. Thornton-Norris, Sgt. H. Biggs, AC.1. H. Travis.

Boxing at Heliopolis.

The Command Annual Novices' Boxing Championships were at the Gymnasium, South Camp, Heliopolis, on Oct. 31 and Nov.

The number of entries were up to the usual standard and some 1 bouts were witnessed, and it appears that the existing open champ will have to look to their laurels.

Air Vice-Marshal Sir Oliver Swann, K.C.B., C.B.E., in present the Challenge Cup to the Aircraft Depot, congratulated the T and their Trainer, L-AC. Foreman, on the show they had put This is the third year in succession that the Depot have won the

Officials: Referee, *FLG. OFF.* Herbert, E.R.D.; Judges, Sq. Rutherford, H.Q.E.G., and *FLG. OFF.* Rogers, 216 Sqn.; Timekee *FLG. OFF.* Atkinson, H.Q.E.G.; M.C., S.M.2. Fallon, 216 Sqn.; C Whip, Sgt. Jeffries, D.C.M., S. of P.T.; House Manager, Sgt. I S of P.T.; Secretary, S.M.1. J. H. Wortley, M.M., S. of P.T.

The results were as follows:—

Bantams.—AC. Bishop, of Stores Depot, beat AC. Thorne, of E Group, after a good fight.

Light-Heavy.—AC. Brockwitz, of H.Q.M.E., beat AC. Parsons H.Q.M.E., in the first round.

Middle-Weight.—AC. Molyneux, of Aircraft Depot, beat AC. F of 4. F.T.S., after a very good fight. Molyneux was very st and used a good left to advantage. With a little more experi he should go a long way. Fear was awarded a good loser's prize.

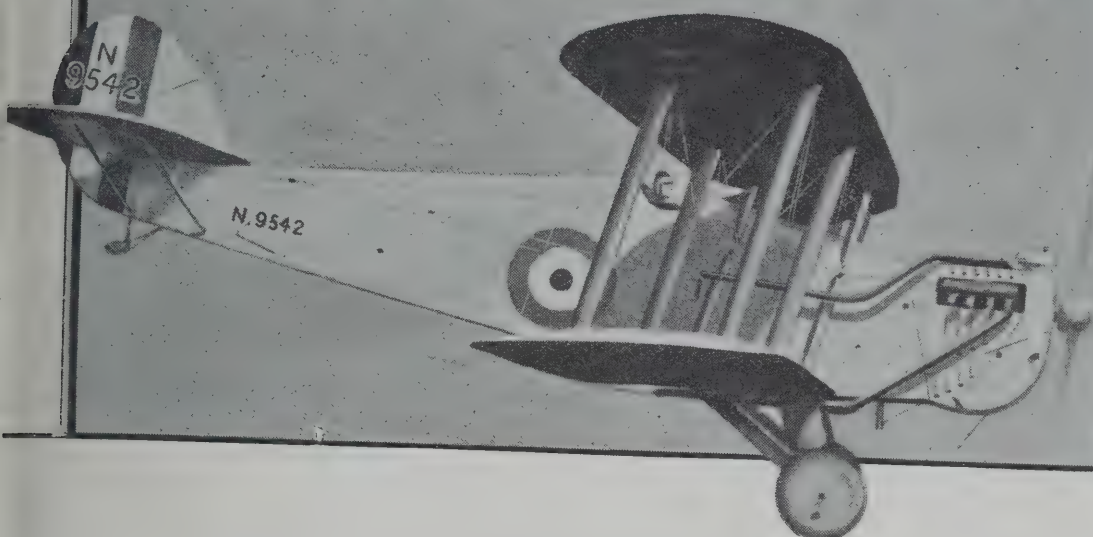
Welter-Weight.—AC. Thompson, of H.Q.E.G., defeated Sgt. Rich son, of 4. F.T.S., after a very fine bout, with a close finish.

Light-Weights.—Cpl. Hydes, of Aircraft Depot, beat AC. Read Aircraft Depot, on points. This was one of the best bouts witne in Novices' Shows for some time.

Feather-Weights.—AC. Davidson, of E.R.D., beat AC. Marshall Aircraft Depot, after a very good show. Davidson being the t used his reach to advantage.

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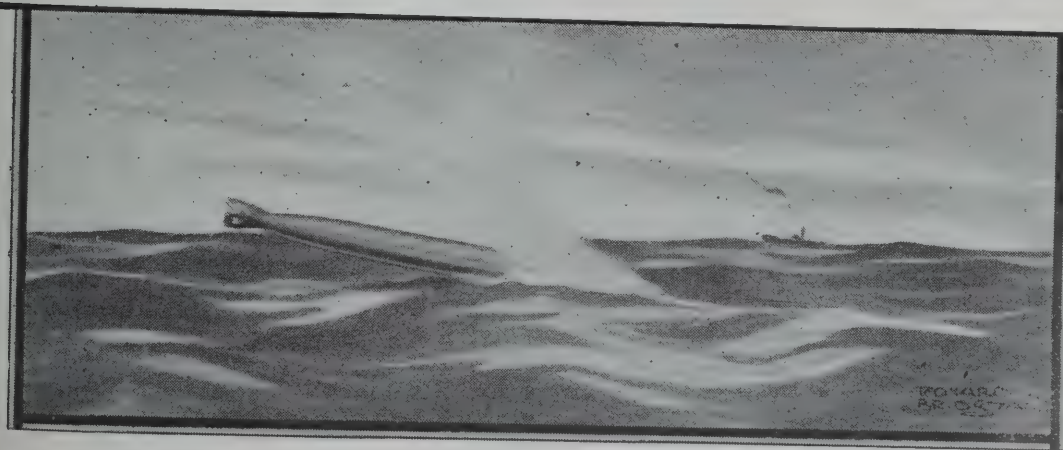
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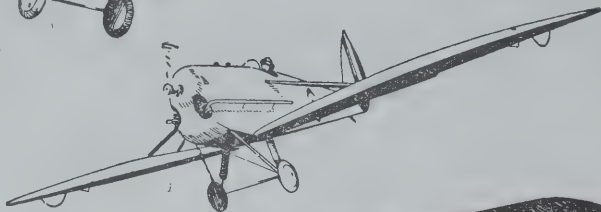
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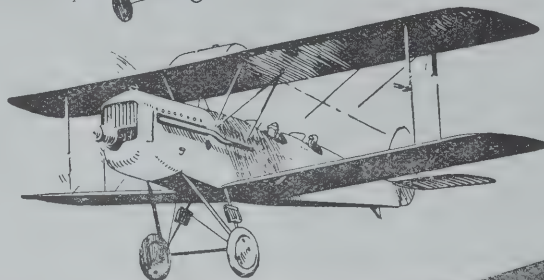
DE HAVILLAND AIRCRAFT



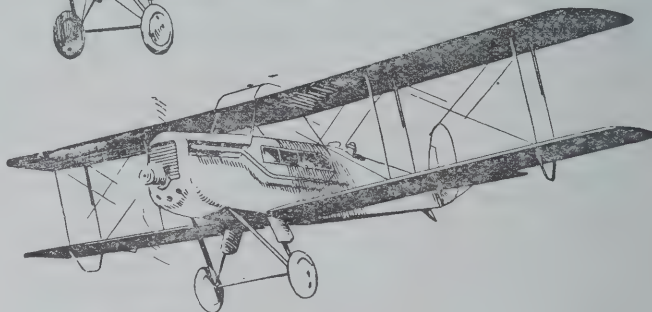
D.H.34
ELEVEN
SEATER
AIR LINER
(450 h.p. Napier
"Lion.")



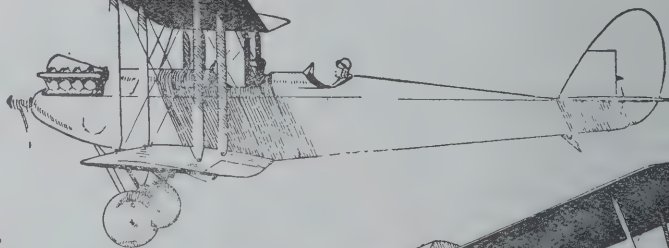
D.H.53
LIGHT
MONOPLANE
For TRAINING
and PRACTICE
(696 c.c. Blackburn.)



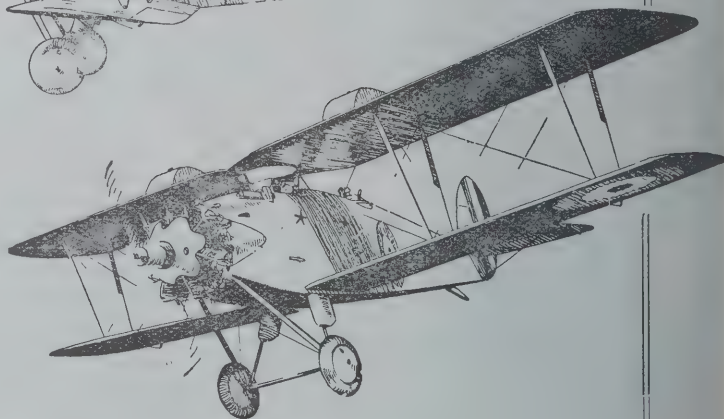
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SECOND THOUGHTS ON LIGHT AEROPLANES.—II.

It is of course of little use to attempt to argue with those who hold that no cruising speed of less than 100 m.p.h. is of any use for either business or pleasure purposes. It is a curious fact that this particular affection for 100 as the essential figure is to be found not only in Britain but in all other countries in which aviation has developed to any noticeable extent. The curious thing is that in countries where the metric system is in everyday use 100 kilometres per hour is the accepted figure.

THE NECESSITY OF SPEED.

The only limit to the speed which must be attained if the aeroplane is to be used for transport or business is that determined by the alternative available means of transport. Britain happens to possess the fastest and best system of railway transport throughout the world, yet there is no journey of over 100 miles that can be covered by train at 60 m.p.h., and only two or three that can be covered at over 55 m.p.h. For the majority of train journeys of 100 miles or over that the average business man in this country has to take, the maximum overall average speed is probably nearer 30 m.p.h. than 40 m.p.h.

On the road the journeys that can be accomplished at an average of 40 m.p.h. are an extremely small proportion of the whole. The average overall speed attained by passenger-carrying motor-cars used for business purposes, probably does not equal 20 m.p.h. Yet even at this speed there are thousands of people who find that the motor-car saves them enough time to compensate for the higher cost of motor transport as compared to that of the train.

The 35 h.p. two-seater light aeroplane can easily be given a cruising speed of 60/65 m.p.h. Its average point-to-point speed taken over any large number of reasonably long flights in this climate would not fall below 50 m.p.h.—a very much higher figure than can be attained by any other form of transport unless one travels only on certain selected main-line railway routes. On occasion, against a 40-m.p.h. wind the average speed of one journey may fall to 20-25 m.p.h. This is likely to occur rather less often than a batch of tyre troubles are likely to occur to a motor-car, and not really much more frequently than accidental delay to a train.

It may be granted that there are very many people to whom the high average speed of transport of the aeroplane would be of little use. It is equally true that there are many people to whom the high average speed of, say, the G.W.R. main-line trains are of little use. It is unfortunately true that of the many thousands of people to whom the light aeroplane could be of use only a very microscopic proportion at the present time would ever dream of flying about their business. The only possible way of persuading these people that the aeroplane could serve them is for the few who would like to fly to be encouraged to do so. Loudly to assert that only the impossible aeroplane is of any real use is scarcely the way to promote public belief in the value of flying.

Then again one is told that the few who would be willing to fly about the country, if they could afford it, would not go pottering about at 60 m.p.h. after having once tasted the joys of flying at 100 m.p.h. and over. There may be—probably are—some few in whom the lust for absolute speed is

highly developed. But on the other hand it is worth considering the opinion of one of the most experienced of living pilots—one who has flown machines of practically every type, from the glider to the racing freak, and who is one of the very few people in this country who has owned and used aeroplanes of his own.

A PILOT'S VIEW.

He would rather spend three hours in a 60 m.p.h. light aeroplane, than one hour on a high-performance machine over the same journey. Unless one can keep close to the ground there is nothing so deadly dull as flying. High up one loses all sense of speed—there is no scenery, nothing whatever of interest to take the mind off the monotony of the journey. Driving a motor-car fast over an absolutely featureless desert would be more exciting than flying high up. Therefore, if one wishes to fly and enjoy it, you must keep at 200 feet or so. If you have to fly fast heavily-loaded machines to any large extent, you find yourself compelled occasionally to indulge in hedge-hopping to make the business bearable. But you don't do it often, for you know that sooner or later you will be caught out, then you won't have the chance to do it again.

But on the 60 m.p.h. light aeroplane, thanks to its manoeuvrability and its ability to land and stop in a small space, you can safely fly over the greater part of England at a height at which the journey becomes interesting, and at which you get a much more vivid sensation of speed than is possible at any safe height in a fast machine.

And with this attitude one must agree thoroughly. Certainly for the great majority of normally constituted people flying is unutterably boring unless one can keep close to the ground and can see what is happening round one.

And on that ground it is fairly safe to say that if flying is to become popular, low flying has to become safe. The light aeroplane is intrinsically safer at low altitudes than any other type of machine, and will always be safer than any heavy aeroplane even of the same landing speed, because the larger and the heavier the machine, the less manoeuvrable it becomes.

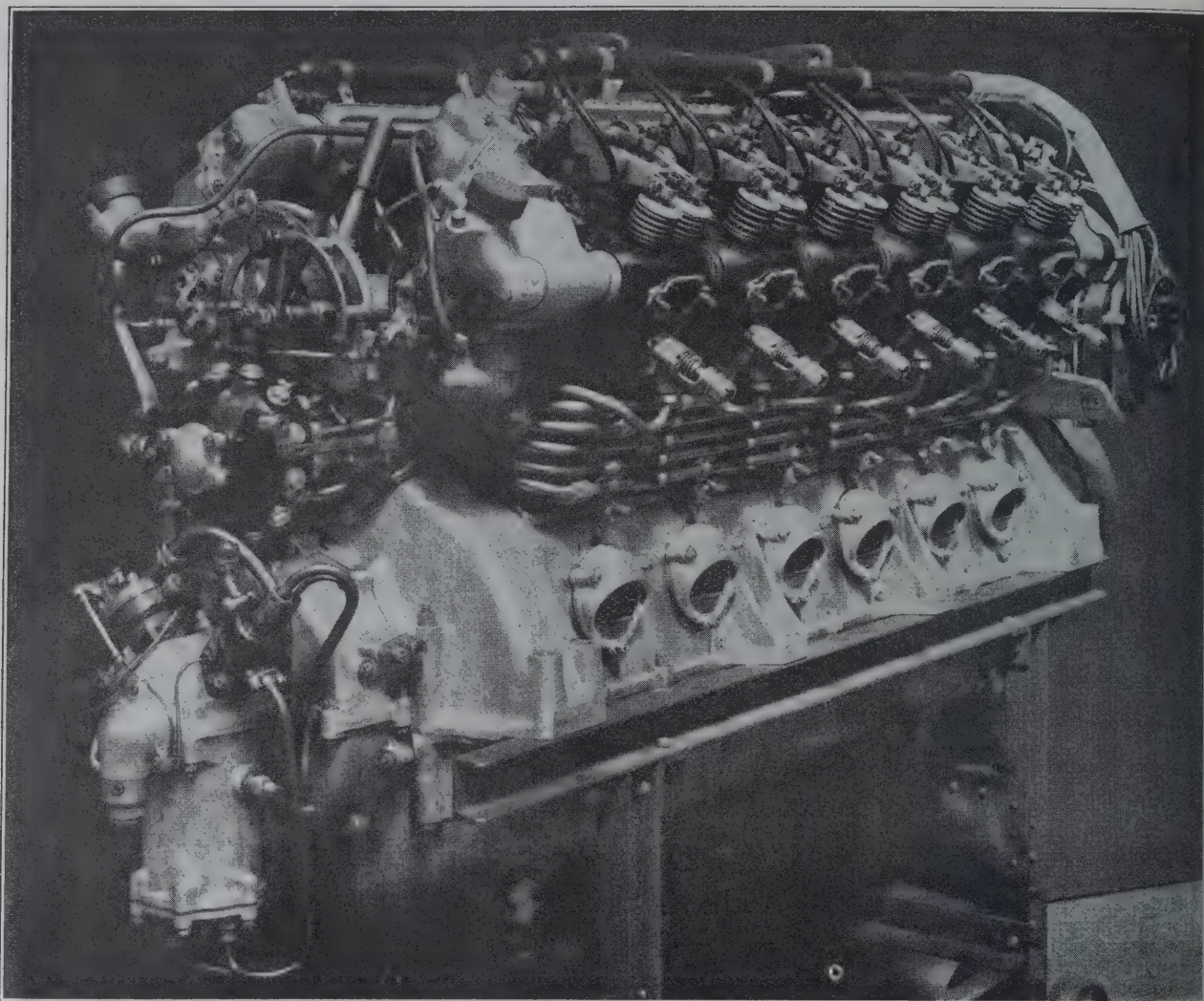
No one in his senses is likely seriously to maintain that the 35 h.p. two-seater as it actually appeared at Lympne last month is the perfect light aeroplane. It is well to remember that the recent competitions can be regarded only as the preliminary tests of a set of machines less than six months' old in design in most cases, and that even taking the single-seaters of last year into account they represent a type of which there is only 18 months' experience. And there are many examples of highly satisfactory types of heavy aircraft whose design is based on years of experience and development of machines of a similar class in which two, three or even more years have elapsed between the laying out of the original design and the first production of a machine of the type which could be put into service.

It is not reasonable to expect that a reasonably satisfactory light two-seater should be ready to go into service either as a training or a private sporting type in much less than another year, and not even then unless the designers of these machines are encouraged to continue development of the types which they have already partially evolved.



The Aero 18b (300 h.p. Walter engine), which won the President of the Czecho-Slovak Republic's Cup in a speed race held at Prague on Sept. 7, 1924. Its average speed over the 200-km. course was 263.4 km.p.h. (164.6 m.p.h.).

THE NEW MAYBACH AIRSHIP ENGINE.



One of the 400 h.p. 12-cylinder Maybach engines fitted to the Z.R.III (L.Z.126).

The two photographs here reproduced give an excellent idea of the new 12-cylinder Maybach engine which has been developed during the past two years or so and which is used on L.Z.126, otherwise Z.R.III, the airship recently delivered to the U.S. Navy.

Inquiries for information concerning the dimensions, weight or performance of these engines have so far met with no response, but some general information of a distinctly interesting nature has been received.

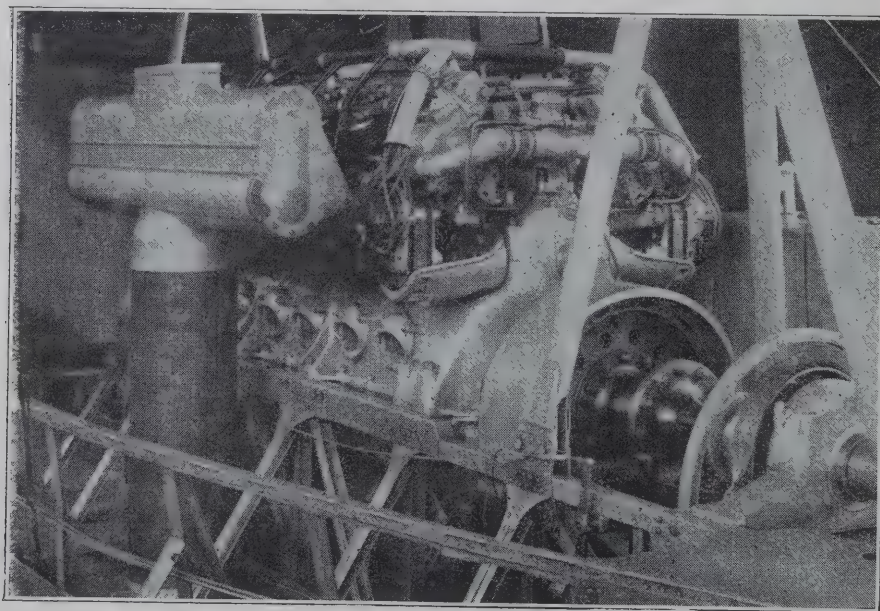
The greatest novelty of this new type of Maybach lies in the fact that the engine itself is made to reverse for manœuvring

purposes. The method used for securing running in two directions is well known as applied to marine oil engines, and depends upon the provision of a sliding camshaft for each line of cylinders. This camshaft is fitted with two sets of cams, each set giving the valve timing sequence for one direction of running and by moving the shaft as a whole one or another set is caused to control the valves.

In addition to a change in the valve timing the magnetos have also to be differently timed, since a setting which would give a spark before dead centre for right-hand running would give a spark after dead centre when the engine is running left-hand. The engine has to be brought to a standstill before readjusting the timing arrangements for reversed running and then started up again, and in order to secure that the operations can only be carried out correctly, the whole gear is so interlocked that the camshaft shifting gear cannot be moved until the throttle has been closed and the magneto timing set to the appropriate position. In the photograph at the head of the page the control gear which is used is clearly visible.

From the photograph it appears that the engine is fitted with some form of gas-starting gear and that an engine-driven air compressor is provided to supply the necessary gas pressure.

The smaller photograph at the bottom of the page shows one engine installed in one of the power-eggs of Z.R.III. The engine drives the airscrew shaft directly through a large clutch, and the airscrew shaft is fitted with a band brake so that the airscrews may be brought to a standstill. A noticeable feature of this photograph is the exhaust manifold, presumably water-cooled.

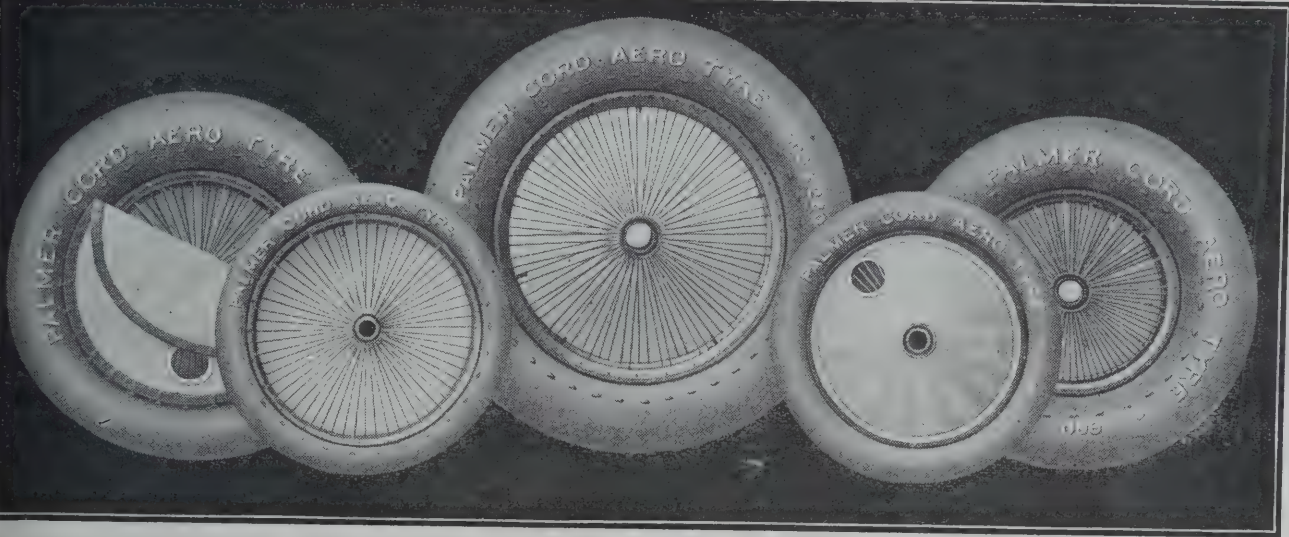


One engine installed in a power-egg on Z.R.III.



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		m/m	m/m	m/m			m/m	m/m	m/m			m/m	m/m	m/m
375 x 55	168	111.12	25.4	Central	700 x 100	96	178.	55.	132/46	1000 x 150	201	185.	60.32	125/60
300 x 60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	1000 x 180	148	220.	80.	Central
450 x 60	30	89.	31.75	Central	650 x 125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
575 x 60	21	160.	28.	Central	750 x 125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900 x 230	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
600 x 75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	800 x 150	112	150.	38.09	Central	"	202	185.	60.32	Central
700 x 75	78	178.	44.45	132/46	"	82	185.	55.	135/50	1100 x 220	134	220.	66.67	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	"	136	250.	80.	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	1250 x 250	133	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
800 x 100	77	178.	44.45	132/46	1000 x 150	169†	185.	55.	135/50	1500 x 300	115	304.8	101.6	Central
"	92	185.	55.	135/50	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	95	185.	55.	Central	"	131	220.	66.67	Central	1750 x 300	139	400.	152.4	Central
					"	150	185.	55.	Central					
					"	167	185.	55.	125/60					
					"	174	250.	80.	Central					

*Wheels Nos. 161, 163 and 211 are of stronger type than the other wheels for 800 x 150 tyres.
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AN ITALIAN BOMBER.



The Breda Night Bomber. A new Italian type fitted with four 205 h.p. S.P.A. engines.

Built by the Società Italiana Ernesto Breda of Milan, the machine shown in the accompanying illustration is a four-engined cantilever biplane of mixed timber and duralumin construction designed for night bombing operations.

The wing structure follows fairly closely the model set by Fokker in his cantilever biplanes—that is, there is a central wing unit tied to the fuselage by a more or less complex system of rigid struts. In this case the complexity is more as the strut system includes the supports for two engine nacelles, each carrying a pair of 205 h.p. S.P.A. engines, type 6A.

The upper wing is of considerably greater span and chord than is the bottom one and both are of a very thick section. Ailerons appear to be fitted to the upper wing only and are balanced by separate surfaces carried forward of the hinges above the wing after the manner adopted in certain Avro and some German machines.

There is an undercarriage with one wheel below each engine

nacelle of somewhat complicated structure. The fuselage is of rectangular section with the usual gunner's cockpit in the extreme nose. Two pilots are carried well forward and there is an after cockpit behind the wings which communicates with the front ones by a passage way through the body. A large biplane tail is fitted.

SPECIFICATION.

Span	23.0 m. (75 ft 5 in.)	Wing loading...	40 kg./sq. m. (8 lbs./sq. ft.)
Length	15.45 m. (50 ft. 8 in.)	Power loading ...	7.1 kg./h.p. (15.1 lbs./h.p.)
Height	5.79 m. 19 ft.)	Maximum speed ...	182 km.h. (114 m.p.h.)
Wing area	148 sq. m. (1,595 sq. ft.)	Minimum speed ...	85 km.h. (53 m.p.h.)
Engines ...	4 S.P.A. type 6A. (205 h.p. each)	Climb to 5,000 m. (16,390 ft.)	65 mins
Weight empty ...	3,700 kg. (8,167 lbs.)	Tank capacity	6 hours
Weight loaded	5,830 kg. (12,868 lbs.)		

Two Italian Training Machines.

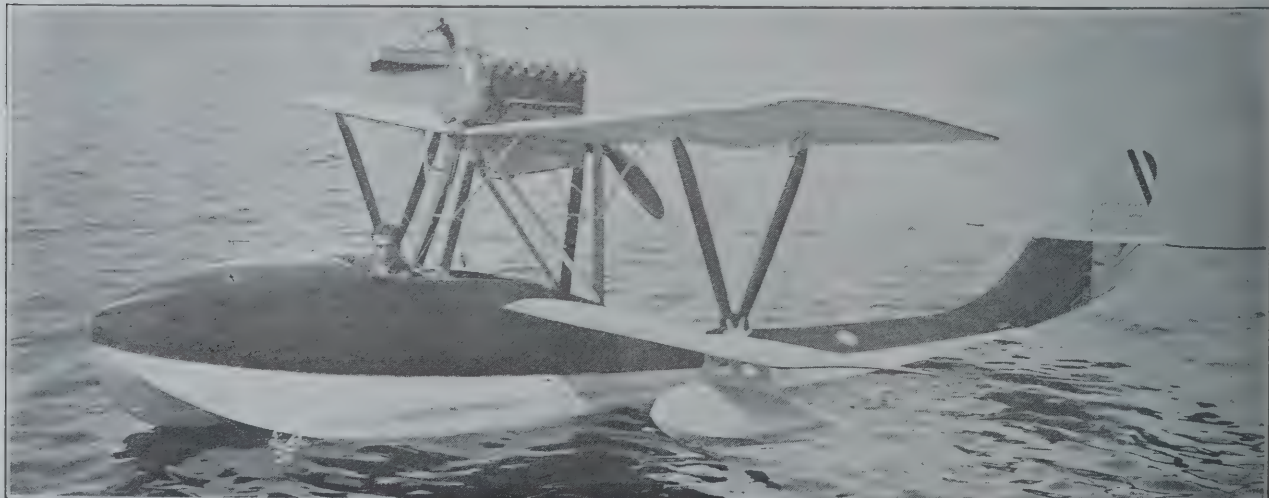
The Officine E. Cantieri Montofano Ltd., of Via Litoranea Ai Granili, Naples, entered the aircraft industry late in 1923 by putting under construction two machines resigned by Ing. Ricci. Both these machines, the R.5 and the R.7 have now been completed and are undergoing their official tests.

The R.5 is a two-seater flying boat of standard wood construction intended for school and training purposes. Both wings, of equal span, are built on one spar and are interconnected by one set of metal Vee interplane struts on either side of the hull. A 50-60 h.p. Combi six-cylinder vertical water-cooled engine is carried above the top plane.

SPECIFICATION.

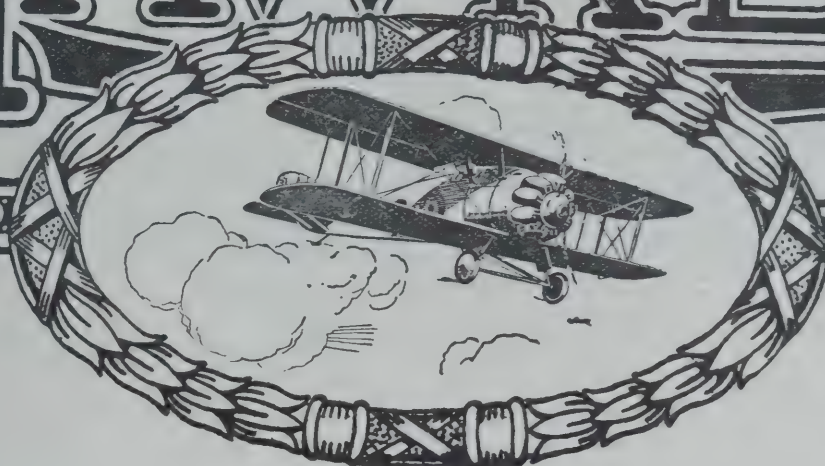
Span	7 m. (23 ft. 4 in.)
Length	8.10 m. (27 ft.)
Height	2.3 m. (7 ft. 8 in.)
Area	15 m ² . (162 sq. ft.)
Weight (empty)	350 kgs. (770 lbs.)
Useful load	200 kgs. (440 lbs.)
Weight loaded	500 kgs. (1,100 lbs.)
Max. speed	125-135 km.p.h. (78-84 m.p.h.)
Min. speed	65 km.p.h. (40.6 m.p.h.)

The R.7 is a two-seater land machine fitted with the 50



The R.5 two-seater Flying-boat (50-60 h.p. Combi engine) designed by Ing. Ricci and built by the Cantieri Montofano of Naples.

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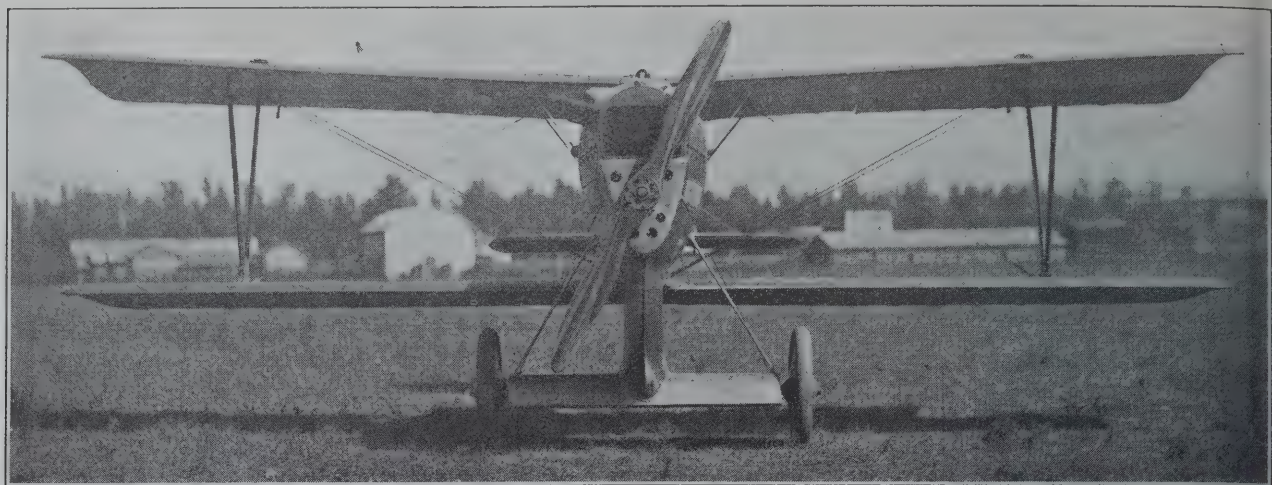
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The R.7 Training two-seater (50/60 h.p. Combi engine), another new Ricci design built by the Cantieri Montofano.

60 h.p. Combi engine and is destined for school and training purposes.

The wings are of equal span, the top plane being in two pieces whereas the bottom plane is in one piece. Both wings are built around one spar and the interplane struts are steel tube Vees.

The fuselage is of oval cross-section tapering to a vertical knife-edge aft. It is built up of ash longerons, three-ply bulkheads, and is ply-wood covered. Tandem dual-control is fitted.

SPECIFICATION.

Span	6.5 m. (21 ft. 8 in.)
Length	6.4 m. (21 ft. 4 in.)
Height	2.3 m. (7 ft. 8 in.)
Area	15 m ² . (162 sq. ft.)
Weight empty	300 kgs. (660 lbs.)
Useful load	200 kgs. (440 lbs.)
Weight loaded	500 kgs. (1,100 lbs.)
Max. speed	140 km.p.h. (87.6 m.p.h.)
Min. speed	65 km.p.h. (40.6 m.p.h.)

Prof. Bairstow on Skin Friction.

The paper read by Prof. Bairstow before the Royal Aeronautical Society on Thursday, Nov. 11, consisted of an account of recent progress in the mathematical analysis of the motion of the fluid in the skin or boundary layer close to the surface of a solid body immersed in a stream. It is in this boundary layer that occurs the "shearing" of the fluid and which leads to the development of the viscous forces which manifest themselves in the form of skin friction.

The paper, which is purely of a mathematical nature, indicates that progress is being made towards a solution of the very intricate mathematical problems involved.

Steel and the Light Alloys.

In a paper read before the Institution of Aeronautical Engineers on Nov. 7th, by Col. N. T. Belaiew, C.B., under the title, Steel versus Light Alloys, the author, after some outline of the physical characteristics of the light alloys now known, discussed in some detail the possibility of using steel to still greater advantage by arranging that the grain of the metal should be arranged to the best advantage.

He instanced the work of the early Oriental sword and armour makers, the quality of whose products was amazingly good, whose work depended upon and was judged by the production of an appropriate grain structure.

It was generally admitted that a correct grain structure was essential in highly-stressed metal structure, but Col. Belaiew suggested that insufficient attention had been paid of recent years to this subject and that more than merely avoiding thoroughly bad grain arrangements was desirable if the best results were to be obtained.

Engine Type-Names in America.

As the result of a recent editorial note in "Aviation," suggesting that the American Aircraft Industry should adopt a system of naming aircraft and aero-engines similar to the policy pursued in this country, the Wright Aeronautical Corporation of Paterson, N.J., has suggested the adoption of the names of storms for their various engines and of American Indian tribes for their aircraft.

The names chosen for their existing products are :—P.I. 2 h.p. air-cooled engine, Wright-Cyclone, T.3. 600-675 h.p. water-cooled engine, Wright-Tornado, T.3. 550-600 h.p. marine engine, Wright-Typhoon, J.4. 200 h.p. air-cooled engine, Wright-Whirlwind, L.4. 60 h.p. air-cooled engine, Wright-Gale, E.4. 200 h.p. water-cooled engine, Wright-Tempe, E.4. 200 h.p. standard-bore marine engine, Wright-Hurricane, E.4. 240 h.p. Special Gold Cup marine engine, Wright-Gold Cup, and the Wright-Corps observation aeroplane, Wright-Mohawk.

[It is a little unfortunate that in their attempt to follow the British system of type names the Wright firm should have adopted both Cyclone and Typhoon, which are already in use to designate two of the new Beardmore engines.—E.]

New Technical Literature.

Aeronautical Research Committee, R. & M. No. 917.—The Frequency of the Eddies Generated by the Motion of Circular Cylinders Through a Fluid. By E. F. Relf and I. F. G. Simmons. Price 3d. net.

The National Advisory Committee for Aeronautics (U.S.A.) Report No. 188.—Stresses in Wood Members Subjected to Combined Bending and Column Action. By J. A. Newlin and G. W. Trayer.

Report No. 189.—Relation of Fuel-Air Ratio to Engine Performance. By S. W. Sparrow.

Report No. 190.—Correcting Horse-power Measurements to Standard Temperature. By S. W. Sparrow.

Report No. 192.—Charts for Graphical Estimation of Airplane Performance. By W. S. Diehl.

Report No. 196.—Comparison of Model Propeller Tests with Actual Theory. By W. F. Durand and E. P. Lesley.

Technical Note No. 201.—Micarta Propellers IV. Technical Methods of Design. By F. W. Caldwell and N. S. Clay.

Technical Note No. 202.—Experimental Investigation of Oscillating Airstream (Katzmayr Effect) on the Characteristics of Airfoils. By Toussaint, Kerneis, and Girault.

Technical Note No. 203.—A Short Method of Calculating Torsional Stresses in an Airplane Fuselage. By J. E. Younger.

Technical Note No. 204.—A Study of Static Stability of Airships. By F. Rizzo.

Another New Manchester Aerodrome.

The Lancashire Aero Club which has had to move from the dismantled Alexandra Park Aerodrome has secured new aerodrome outside Manchester. It is most conveniently situated and a hangar and club house are to be erected at an early date.

The Club which already has a good record, having constructed its own gliders and flown them successfully, has now a large membership, including twenty-five pilots. Nine of these pilots are members of the Reserve.

In order to secure the full benefit of the Air Ministry Scheme for Light Aeroplane Clubs as many members as possible are wanted, and a public meeting at the Midland Hotel, Manchester, at 8 o'clock on Tuesday, Nov. 18, is to be held. Anyone interested is invited to attend and they can then become a member.

It is understood that the Club's aerodrome is quite separate from the new site which, as recorded last week, has been acquired by A. V. Roe and Co. Ltd.

The Institution of Aeronautical Engineers.

On Friday, Nov. 21, Dr. A. P. Thurston will read a paper on Graphical Methods of Aircraft Structural Design before the Institution at the Engineers' Club, Coventry Street, W., at 6.30 p.m.



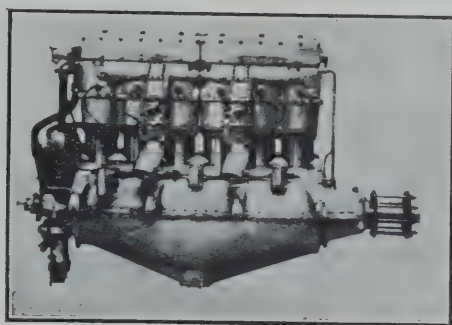
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ANOTHER "PUMA" SUCCESS.



Tests made in Belgium under the direction of Major J. Smeyers, Commandant of Military Aviation, with a D.H.9 machine fitted with 240 h.p. Siddeley "Puma" engine supplied by this Company.

Pilot: Lieut. Fabry.

Passenger: Corporal Pilot Roy de Blicquy.

First Test:

22nd August, 1924.

Took Off 9.35 a.m.

Landed at 6 p.m.

DURATION OF FLIGHT WITHOUT LANDING:

8 HOURS 25 MINS.

Second Test:

29th August, 1924.

Took Off 7.37 a.m.

Landed at 7.40 p.m.

DURATION OF FLIGHT WITHOUT LANDING:

12 HOURS 3 MINS.

These flights were made to test the petrol and oil consumption which were for No. 1 Flight, petrol 330 litres, oil 31 litres, and for No. 2 Flight, petrol 492 litres, oil 45 litres.

After each of these flights the engine was thoroughly examined and found to be in perfect order.

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New Aircraft Disposal Co. Products.

The design department of the Aircraft Disposal Company have recently evolved two exceedingly interesting productions

The first of these is a clever modification of an old engine and is called the 130 h.p. A.D.C.-Renault. A standard 80 h.p. Renault engine has been taken and by various means which will be described in an early issue of THE AEROPLANE has been made to develop 136 h.p. and has just completed a ten-hour type-test under Air Ministry supervision. It has been installed in an Avro and has enabled the climb to 10,000 feet to be accomplished in half the time that has been possible with any rotary engine. It is now being installed in the D.H.51—that is the machine which Capt. de Havilland himself flies. It seems that this engine should be ideal for installing in Service Avros in place of a Monosoupape Gnome.

The second new product is a Martinsyde F.4 which has been converted to take the 350 h.p. Armstrong-Siddeley Jaguar engine. The mounting of the Jaguar, which has been devised by Mr. Kenworthy, is certainly the neatest that one has yet seen.

On its recent tests with full war load the top speed was well over 150 m.p.h. and the climb is quite extraordinary.

On Saturday morning just as Mr. Perry was taking off Mr. Soden of Austin Whippet fame happened to be passing on a Service machine also with a Jaguar engine and seeing an F.4 taking off decided to give chase. Although the Service machine had already got up speed by a preliminary dive and Mr. Perry was taking straight off the ground the Service machine was unable to catch the Martinsyde and at 10,000 feet it was left well behind. The engine in both machines was identical. Comment seems unnecessary.

The Coupe Lamblin.

The Farman Jabiru (four 180 h.p. Hispano-Suiza engines) piloted by Adj. Henu and Capt. Philippe, of the *Service technique de l'Aeronautique*, has been awarded the 1924 Lamblin Cup and 10,000 francs prize money, the competition for which closed on the last day of October.

For the 1924 competition, the course was Paris-Istres-Paris which had to be covered in the shortest possible time and the actual flying time of the Farman over the distance of 1,260 kms. was 7 hrs. 37 mins. 8.1-5 secs., showing a speed of 180 km.p.h. (115 m.p.h.). Owing to the fact that the Jabiru was allowed one hour for being a multi-engined machine and one hour for ballast equivalent to 12 passengers carried (5 mins. per passenger) her competition flying time was reduced to 5 hrs. 37 mins. By this favourable handicap the Farman Jabiru was placed ahead of the Dewoitine D.1.C.1 (300 h.p. Hispano-Suiza) piloted by Lieut. Rabatel, which covered the distance in 6 hrs. 13 mins., and which has been awarded second prize of 5,000 francs.

The other prize-winners were:—4,000 francs, Capt. Battesti, Nieuport-Delage 29C.1 (300 h.p. Hispano-Suiza engine), 6 hrs. 23 mins. 57 secs.; 3,000 francs, Lieut. Tourre, Nieuport-Delage 29C.1 (300 h.p. Hispano-Suiza engine), 6 hrs. 33 mins. 23 secs.; and 2,000 francs, Lieuts. Carrié and Faure, Breguet 17C.2 (450 h.p. Renault engine), 6 hrs. 50 mins. 3 secs.

Created for three years, the Lamblin Cup Competition has now ceased.

It was intended that the Cup should become the property of the firm which had won it two years out of three, but as it has been won by a different firm each year, in 1922 by Lieut. Rabatel on a Gourdon-Lesurre monoplane (180 h.p. Hispano-Suiza engine), in 1923 by Adj. Bonnet on a Nieuport-Delage 29C.1 (300 h.p. Hispano-Suiza engine), and this year by Farman, it is announced that the Cup will become the property of the firm who have made the highest economical speed in any of the three competitions, the figures for which are now being considered by the *Commission Sportive* of the *Aero Club de France*.

It is interesting to note that the first four machines in the 1924 competition as well as the winners of the two previous contests were equipped with Lamblin radiators.

A French Mission to Central America.

A French Aviation Mission is leaving, or has just left, for Central America under the organisation and private initiative of the *Société pour le Développement de l'Aviation*.

The mission will take with it some aircraft of the light



A TRAINING BIPLANE.—Here is seen at Andover a Bristol training machine with 100 h.p. Lucifer engine.

commercial type known as *avions de tourisme*, capable of flying over and landing on virgin territory, and what is known as a *reconnaissance aérienne* will be made during the first fortnight in January from Guatemala City over five Central American countries of Guatemala, San Salvador, Honduras, Nicaragua, and Costa Rica.

MM. Mauler and Thounin are to be the pilots and a L. Jeanneau will be in charge of the technical questions of the Mission as well as acting as aerodrome and future air-line expert and adviser to the various interested Governments.

A New French Speed Record.

On Nov. 8 at Istres aerodrome, near Marseilles, Adj. Bonnet flying a Bernard-Férbois monoplane (450 h.p. Hispano-Suiza W type engine and Levasseur-Reed duralumin screw) attained an average speed over the observed speed course of 389.89 km.p.h. (243.68 m.p.h.), thus setting up a new French speed record. In a 20-25 m.p.h. wind Adj. Bonnet flew over the Course, twice in each direction, at 364.18, 350, and 439 km.p.h. at a height of only 10 feet.

Adj. Bonnet, who belongs to the 38th Regiment of Aviation at Thionville, was granted four months' leave in order to test the new racing Bernard monoplane. He reports that he was very satisfied with the machine, that it lands comfortably at 110 km.p.h. (68-70 m.p.h.) and that with some slight modification he will make an attempt to beat the World's Speed record which now stands at 429.025 km.p.h. (268.14 m.p.h.).

PERSONAL NOTICES.

DEATHS

CHANDLER.—On Nov. 10, killed in flying accident, at Netheravon John Maurice Chandler, Lt., R.N., second son of Edward and Frances Chandler, Witley, Surrey, aged 23.

Mr. Chandler was one of the attached Naval Officers under instruction at No. 1 F.T.S., Netheravon. At the time of the accident he was flying a Sopwith Snipe and came into collision with a Fawn, carrying Sjt. Taylor and Sjt. Morfett.

MORFETT.—At Netheravon, on Nov. 10, as the result of a collision in the air, Sjt. George Morfett, R.A.F., of Axeholme Road, Gooch, aged 22.

REID.—On Nov. 12, in Iraq, as the result of a flying accident, Ellis Reid, Flg. Off., No. 1 (Fighter) Sqdn., R.A.F., son of late Colonel E. R. Reid.

Mr. Reid passed out of Cranwell in August, 1922, and was posted to No. 2 Sqdn. In February of this year he was posted to Leuchars and was promoted to Flg. Off. in May. He proceeded overseas in September and joined No. 1 Sqdn. at Hinaidi. Mr. Reid was in the Cranwell Athletic Team.

No. 1 Sqdn. is equipped with Sopwith Snipe.

TAYLOR.—At Netheravon, on Nov. 10, as the result of a collision in the air, Sjt. George Taylor, R.A.F., of Walker Street, Glasgow, aged 42.

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 9; Tuesday, 1; Wednesday, 1; Thursday, 1; Friday, 5; Saturday, 7; Sunday, 4.

AERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 23, passengers 107, freight 9 tons.

AIR UNION:

Paris—London: Machines 12, passengers 36, freight 9 tons.

A.M.:

Amsterdam—Rotterdam—London: Machines 4, passengers 10.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 0, passengers 0.

ROYAL MACHINE:

HAVILLAND AIRCRAFT CO., LTD.:

Machine 1, passengers 0.

Total number of trips by British machines: 24, carrying 107 passengers. Foreign machines: 16, carrying 46 passengers.

Comparative Figures:

Week ending Nov. 16:

Machines, 40; Passengers, 153; Crews, 52; Total personnel, 205.

Corresponding week, 1923:

Machines, 80; Passengers, 157; Crews, 129; Total personnel, 286.

Corresponding week, 1922:

Machines, 22; Passengers, 55; Crews, 48; Total personnel, 103.

Corresponding week, 1921:

Machines, 63; Passengers, 121; Crews, 92; Total personnel, 213.

Corresponding week, 1920:

Machines, 51; Passengers, 86; Crews, 64; Total personnel, 150.

Croydon Notes.

The weather at Croydon in the past week has been very indeed. On Tuesday, Wednesday and Thursday conditions were so bad that no machine was able to complete a trip in the day. On Tuesday Mr. Barnard left Paris on Vimy but did not arrive till the following day having to land *en route*. On Wednesday Mr. Olley on a W.8b Cologne for London and he had to land also and continue the following day. On Thursday nobody started at all. The three-engined Handley Page has been flying on the vice this week. On Monday Mr. Rogers took it to Paris with six passengers in three hours twenty minutes and returned on Friday with seven passengers in two hours twenty minutes. Mr. Stewart took it to Paris with eight passengers Saturday in three hours.

On Sunday 22 members of the All-Blacks Rugby Team, who had so thoroughly defeated London at Twickenham on the previous day, visited the aerodrome. It had been arranged to take them all up in one W.8b and one D.H.34 but owing to the fact that without any luggage they weighed more than ordinary passengers complete with luggage an extra machine had to be used. They were taken for an extended trip over London during which they circled over such places of interest as the Crystal Palace and Twickenham. On Saturday M. Codos of the Air Union was flying to Paris in Goliath F-ADDT without any passengers when an oil pipe came adrift in the air. His mechanic climbed out onto the wing and repaired the oil pipe. It may be remembered that a somewhat similar incident occurred during the Lympne test.

Considerable test work has been done this week by the Aircraft Disposal Company to which reference is made elsewhere.

Ireland and the International Air Convention.

The Air Ministry has issued the following "Notice to Airmen" [III of 1924]:—

The position of the Irish Free State as regards the International Convention has been defined as follows:—

The Irish Free State is to be considered, since the coming into force of its Constitution on Dec. 6, 1922, by virtue of a Proclamation of His Britannic Majesty, as one of the British Dominions mentioned in Article 40 of the Convention for the Regulation of Aerial Navigation, dated Oct. 13, 1919. This Convention and the additional Protocol of May 1, 1920, having been signed and ratified on behalf of the British Empire before that date of Dec. 6, 1922, are in force for the Irish Free State. The Protocol of Oct. 27, 1922, concerning an amendment to Article 5, is also valid as regards the Irish Free State. The Protocol dated June 30, 1923, relating to an amendment to Article 34, has been signed by a representative of the Irish Free State and it is understood that it will be subsequently ratified by His Britannic Majesty on behalf of the British Empire.

Applications for derogations from Article 5 of the Convention by Belgium, France, and Canada have already been accepted on behalf of the British Empire. The application made by Great Britain for Northern Ireland has been accepted by the Irish Free State as well as by the other British Dominions and India.

Gosh!

The world's greatest motion picture scenario is now being made—and even the most blatant, biased and superlatively equipped motion picture press agent would not say that the American world-flight tour now being produced by Uncle Sam, Inc., is by all odds the greatest melodramatic thriller of the year. No shrieking ballyhoo, advertising or exploitation is necessary to put this 'moving picture' over—no expenditure for paid newspaper space and ever hope to get the front page spreads that Uncle

Sam and his all-star cast of intrepid aviators are obtaining in the newspapers of the whole world—no press agent alive could get such a 100 per cent. break on the greatest of his productions," etc., etc.

The foregoing is the beginning of an article in one of the more recent American aviation journals by a cinematograph expert called "The Speed Spooks Speak" featuring the American World Flight and Johnny Hines a cinema actor.

Again—"What thrill could have been portrayed on the screen to equal Commander Martin's melodramatic crash against a mountain in Alaska. In these respects, therefore, there is more than a far-fetched analogy between moving pictures of the screen and 'moving pictures' of the air."

Still again—"Johnny Hines does not consider himself a superman neither do Smith, Wade or Nelson. All these qualities which we admire in a 'star' are, after all, the basis of worthwhile deeds and it is just such men as Johnny Hines and the pilots of the world flight who are the pace makers for the rest of us."

And we in little old Europe merely say "Smith we know, Wade we know and Nelson we know—but who is Johnny Hines?"

A Personal Address.


Mr. J. Stuart M. Michie, late R.A.F., is now with the Berkshire Aviation Tours and would be glad to hear from any of his old friends who served with him in the Air Force. His address is: 3, Marchmont Street, Edinburgh.

For Next Season.

The proprietor of an aeroplane joy-ride concern is seeking for a partner with £100 to £150 to invest in rebuilding a hardly-used Avro to be ready for next year's business. A partner who is also a pilot would be preferred though that is not essential. Anybody interested is asked to communicate with "Joy-rider," c/o THE AEROPLANE.

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ADVERTISER would like to get in touch with persons having patents or ideas appertaining to non-burstable petrol tanks for aeroplanes, etc., with a view to making terms for the manufacture of same. Write, Box No. 5237, THE AEROPLANE, 14, Bream's Buildings, E.C.4.

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EXPERIENCED DRAUGHTSMEN required (seniors and juniors). Aircraft or ship experience preferred, but not essential. State age, experience and salary required to Box 779, T. B. Browne's Advertising Offices, 163, Queen Victoria Street, E.C.4.

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TRANSFERS.—Firms requiring transfers should write to the makers—A. Bird and Co., Latimer Street, Birmingham.

SIX CYLINDER ANZANI aeroplane engines (23), complete with magnetos and carburettors, less propellers, practically new. Made by the Austin Motor Co. £20 each singly, or offers invited for taking the lot.—Commercial Hires, Larches Street, Sparkbrook, Birmingham. Phone Victoria 157.

FOR SALE, 130 h.p. Clerget Aero Engine in perfect running order, complete with running and hand starter magnetos, carburettor, air and oil pumps, petrol and oil tanks, all gauges and rev. counter, together with one pusher and one tractor propeller; the lot ready for fixing; £25; would suit either plane or hydro-glider. McCracken, Main Street, Drummore, Wigtownshire, N.B.

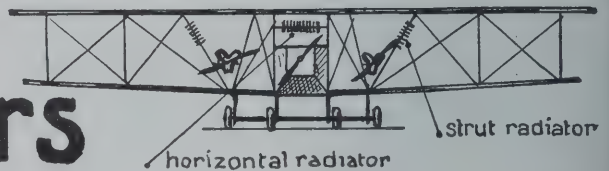
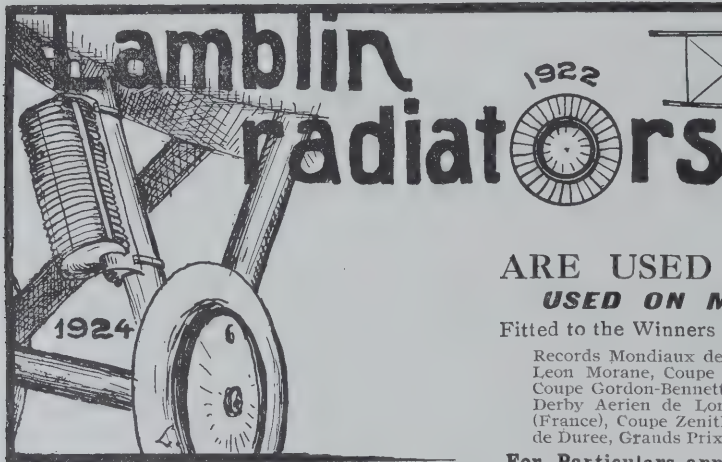
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MISCELLANEOUS.

BROADCASTING AND AEROPLANES in the International Language a necessity. LEAKEY'S INTRODUCTION TO ESPERANTO, price post free. Dreadnought Publishers, 152, Street, London, E.C.

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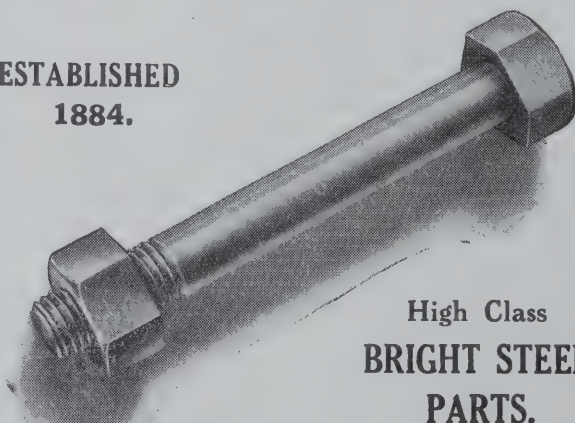
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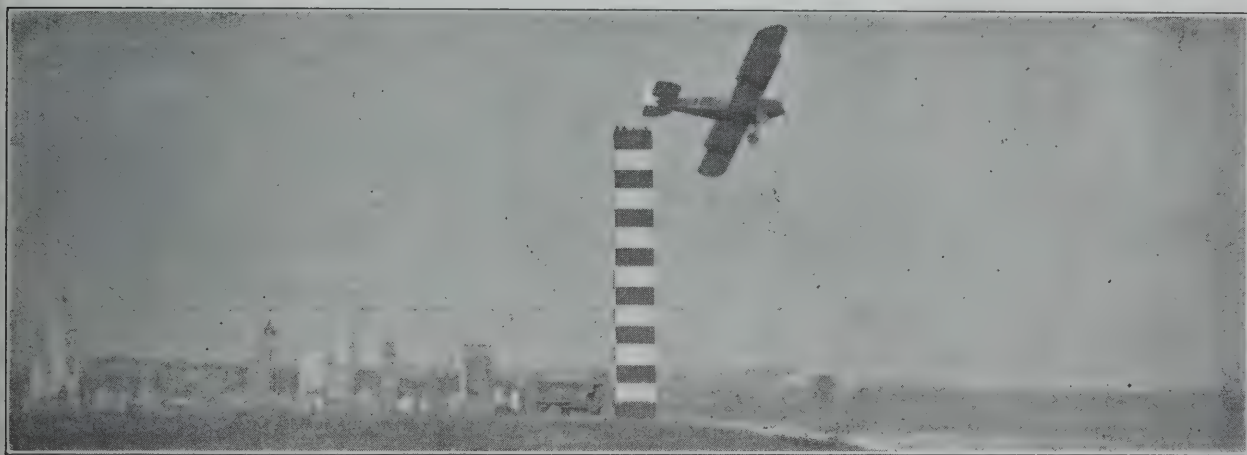
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Edited by
C. C. Grey

Vol. XXVII. No. 22. SIXPENCE WEEKLY.

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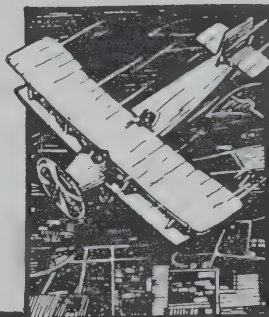


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ON THE MIDDLE EAST.

One of the curious ways in which history repeats itself is in opening a new chapter with a murder, very much like a detective story. Very often the murder has but little to do with the actual progress of the events of which it has been apparently the initial cause.

Thus the event which is generally regarded as marking the opening of the War 1914-18 is the murder of the Archduke Franz Ferdinand of Austria and his Archduchess by a Serbian fanatic. Yet the little town of Sarajevo, where the murder was done, played no part in the War which followed, and the political situation which led up to the murder had still less influence on the war.

Quite possibly the foul murder of Sir Lee Stack, Sirdar of the Sudan, in Cairo on Nov. 19 may mark the beginning of a new war in the Middle East which will ultimately have far-reaching results. Though our miserable students who were concerned with the murder cannot have had anything in their weak but fanatical minds beyond the murder of a highly placed British officer, the effect of the murder may be to crystallise as it were the unrest of the Middle East into something like a religious war, or at any rate a war in which both sides will rise to a pitch of feeling which is not usual in our troubles with native races.

In the old Sudanese wars the Hamitic tribesmen such as Hadenowah, and their Arab allies or leaders fighting under the Mahdi were spurred on by religious fervour, but our white troops fought them coolly and without rancour purely as professional soldiers and the Egyptian Army, hammered into shape by "Sergeant What's-his-name" fought because for the time being we had made the *fellahin* too men, and incidentally because they knew that if they did not fight they would be massacred by the Sudanese.

In the wars of the North-West Frontier of India there is little real animosity on either side. The Pathan fights because it is his national industry, and the British soldier fights because the Pathan is somehow got to be stopped from fighting.

In much the same way our wars with the Kurds on the Frontier of Iraq are waged almost dispassionately on both sides. It is even odd that when an aeroplane of the R.A.F. was forced to descend near the stronghold of the Sheik Mahmud, and the crew were picked up by the Air Officer Commanding, Mahmud sent out a guard to take care of the derelict machine because it was our property. Such murders as are done in Iraq are done by indigenous criminals who have nothing whatever to do with the war.

THE STATE OF EGYPT.

This affair in Egypt is of quite another kind. The murder was not one by an ordinary criminal but was the result of a partly religious, partly political plot, which is all part of the Young Egypt movement, a movement which is the inevitable result of attempting to educate minds which are incapable of being educated. A great servant of the King has again been sacrificed to English notions of Liberalism. None can guess as to what will follow in Egypt. It is announced at the British Government has demanded a fine of half a million pounds from the Egyptian Government and that the Egyptian Premier, Wadhi Wadhi, has been told bluntly that the murder is the result of political plots which if not actually encouraged were at any rate not suppressed by his Government. The money has been paid and Wadhi has resigned.

British troops have been ordered to Egypt and large additional supplies of aircraft are being sent to that country by the Royal Air Force. Also Egyptian troops are being moved out of the Sudan to Egypt, presumably so that they may not contaminate the Sudanese troops.

The one thing that seems fairly evident is that we shall hear no more for some considerable time of the absurd Egyptian claim to sovereignty over the Sudan. And it is more than probable that if we have any real trouble in Egypt we shall use our Sudanese troops against the Egyptian Army—and few things would better please the Sudanese.

On the whole it is very unlikely that we shall have any serious fighting in Egypt. The population of Egypt seems to be composed most entirely of scum, in the form of the student class, and dregs, in the form of the mere *fellahin*. There is no real fighting material among them. But they must be held down by a firm hand and therefore it is necessary to concentrate land and air force in Egypt where we have sufficient barracks and aerodrome accommodation for forces large enough for a great war.

This concentration of armed force may in itself prove to be one of those factors which in a curiously indirect way react for the good of the British Empire.

THE DANGER AREA.

The real danger area in the Middle East is not Egypt but Arabia, where the situation is evidently very grave. For some considerable time there have been inconsiderable paragraphs in the daily press recording raids by Wahabis on our excellent friends the inhabitants of Iraq and Transjordan and the Hedjaz. Some few of the more intelligent editors of newspapers have actually devoted space to articles explaining who are the Wahabis and expatiating on their

great leader. Ibn Saud. It seems well therefore to give here the briefest possible review of the Wahabi movement, so that readers of this paper may understand something of the position. The following information is condensed from Mr. Philby's book *The Heart of Arabia* :—

The Wahabis are the followers of Abdul Wahab Ibn Saud who towards the end of the 18th Century started a violent wave of Puritanism among the Mahometan Arabs. The movement was originally purely religious but soon it assumed a political and secular aspect, very much as did the Puritan movement in England under Cromwell. The worship of saints was regarded as idolatry and the Wahabis destroyed the tombs of saints and shrines of martyrs. They forbade smoking and drinking and every other custom forbidden by the Prophet Muhammad.

So far back as 1804 the Wahabis under Abdullah, great grandfather of the present Ibn Saud, held Mecca and Medina and were masters of Arabia from the Persian Gulf to the Red Sea. It was not until 1818 that the Turks managed to extort a truce from the Wahabis. It is somewhat quaint to think that we are now fighting the direct descendant of a man who was being defeated by the Turks just about when Napoleon was being defeated at Waterloo.

Faisal, grandson of Abdullah, the Wahabi leader of that period, escaped from prison in Egypt in 1840 and at the time of his death about 1867 he had succeeded in restoring the Wahabi State to something like its original vigour.

Thereafter internal jealousy prevented further progress until 1914 when the present Sultan of Nejd saw his opportunity to strike at Turkey on his own account. The British Government then sent an emissary, Captain W. H. I. Shakespear, a brilliant and gallant explorer, to spur the Sultan Ibn Saud, the direct descendant of the founder of the Dynasty in the 18th Century, into active operations against the Turk.

Captain Shakespear was unfortunately murdered and thereafter it seems we lost our hold on Ibn Saud and as so often happens in these affairs with native tribes we backed the wrong horse. According to Mr. Philby: "The Sherif of Mecca received from the British authorities in Egypt, the support which under other circumstances might have been accorded to Ibn Saud, and the subsequent course of events is a matter of history."

THE HEDJAZ FAMILY.

What happened apparently was this. During the War 1914-18 against the Turks the British Government paid Ibn Saud a subsidy of £50,000 per annum, apparently regardless of whether he used it for the pay of his troops or for his own personal purposes. This payment was stopped a year or two ago and since then Ibn Saud has been consistently on the warpath.

It will be remembered that during the War 1914-18 we heard a very great deal about King Hussein of the Hedjaz, the Sherif of Mecca. That well-known character Colonel Lawrence organised an Arab army recruited in the Hedjaz with which he and King Hussein's son, the Emir Feisal (or Faisal), whom we wisely or unwisely have made King of Iraq although he has no tribal connection whatever with the Iraqis, operated against the Turkish line of communication known as the Hedjaz railway. These troops of the Hedjaz used to make detours out into the desert and cut the railway behind the Turks, thus causing some interference with their supplies.

Also we sent a detachment of the R.F.C. under a Flight-Commander to Akaba on the Red Sea, which operated in support of the Lawrence-Feisal bands against the Turks and against those Arabs who were fighting alongside the Turks.

After the war against the Turks was over we made Feisal King of Iraq, presumably as a reward for services rendered, and we made his brother Abdullah King of Transjordan. And we continued to lend our moral support to their father King Hussein in the Hedjaz. Thus we supported three weak States evidently ruled by weak men which are placed on three sides of the territory ruled by Ibn Saud who thus has internal lines of communication and therefore a very considerable strategic advantage.

IBN SAUD.

Ibn Saud's power in Central and South Arabia is immense. Those who know something of him have the greatest respect for his ability both as a commander of men and a political leader.

His chief city, Nejd, is actually of no importance to him as a stronghold and bombing it to pieces would have practically no effect on him. The people over whom he rules are entirely nomadic tribes and it seems to be almost impossible to get at them in any ordinary way. On the other hand the people against whom he operates are largely town dwellers and cultivators and are therefore tied to the soil on which he makes his raids. Where they do not happen to be tied to the land and are merely nomad tribes like his own followers he succeeds to a very large extent in roping them in among his own following.

A British officer who knows the country well told me the other day that Ibn Saud is able to mass a force of 50,000 camel men at

some undiscoverable point in the desert, throw them all into his enemy's country, lay waste the crops, burn the towns and escape with the loot within a few hours. And before the Air Force can get properly into action against him these 50,000 men with their loot are dispersed over thousands of square miles of desert where it is practically impossible to discover them. Yet ten days or so later ten or fifteen thousand of that same force will have re-assembled and be striking at another point 250 or 300 miles away.

One cannot understand how so able a man as Lord Thomson, lately our Air Minister, should make the mistake, as reported in his recent lecture, of thinking that 700 casualties in a battle would have any effect on such an army of fanatics. Still less can one imagine how he could say that the dispersed army would starve in the desert, which is their natural home.

THE HEDJAZ INVASION.

The latest of Ibn Saud's activities is the direct invasion of the Hedjaz. He struck straight at Mecca, the Holy City, the majority of the inhabitants of which promptly bolted to the Red Sea port of Jeddah. The result was that old King Hussein promptly abdicated, on or about Oct. 2, and a third son of his, Amir Ali, was either elected or helped himself to the vacant throne.

At the time of writing apparently the unfortunate Ali is sitting in Jeddah behind a wire fence hoping that somehow somebody will keep the Wahabis from capturing Jeddah as well. Meantime his father, the ex-King Hussein, intends to go and live at Basrah as a private individual, a city which apparently he regards as the safest spot in Arabia possibly because its importance to the oil trade assures the fact that it will never be deserted by British forces.

THE HEDJAZ AIR FORCE.

That being the present state of affairs we may now begin to consider the situation. Apparently King Ali hopes to defend Jeddah by means of air force.

In 1921 his father, Hussein, had a couple of D.H.9s and a couple of Armstrong-Whitworths, supplied indirectly by the Disposals Board, and six Italian-built Caudrons, with an ex-R.A.F. officer in command of two Russian pilots and an Italian and an Arab. This month the Hedjaz (or Hashimite) Government has bought three very good de Havilland aeroplanes of an ostensibly peaceful kind. And two former officers of the Royal Air Force, Messrs. Wigglesworth and McIntosh, have gone out to operate these machines. A fair quantity of bombs and other armament has been acquired also from a well-known British firm.

Apart from this King Ali does not seem to have very much strength to put up against Ibn Saud's tens of thousands of camel-men. The King of the Hedjaz is not officially under our protection and this little air force of his is entirely his own private venture.

OUR PART.

It is possible that by regarding Jeddah as a port in which our national interests are concerned we might use air and naval forces to prevent the Wahabis from actually sacking it. But we are not directly interested in protecting his Kingdom as we are in protecting Iraq and Transjordan.

Still it has so often happened in the history of the British Empire that little British expeditions, which one might call filibustering expeditions but for the fact that Officialdom knows all about them, have grown bit by bit till Officialdom has had to take charge of operations and has had eventually to occupy the country in which those expeditions were operating. Even long before the days of Clive and Warren Hastings semi-independent pioneers have started rows of this kind. And it was the murder of Chinese Gordon in Khartoum which gave us the Sudan.

Thus it is quite possible that the Wigglesworth-McIntosh Air Force may involve us in quite a large campaign in Arabia and that ex-troops and aircraft which have been sent to Egypt to overawe the Egyptians because of the murder of Sir Lee Stack may eventually be shifted to Arabia in the hopes of abolishing Ibn Saud and his Wahabis.

FIGHT OR PAY.

It is certainly always better to fight than to pay tribute. And although a subsidy to a powerful native chief is only a form of tribute it is all very well to pay a subsidy to a small nation while it is doing a job of work to help us and therefore it was quite right to pay Ibn Saud when he was operating with us against the Turks. But we were equally right to stop his £50,000 per annum when his work was done.

It may cost us £5,000,000 or £50,000,000 to crush Ibn Saud but that would be money well spent compared with paying him even £5,000 a tribute.

There is perhaps a still better scheme. That would be to send somebody of the calibre of the late Captain Shakespear to propose to Ibn Saud that with our support he should become Emir of all Arabia including not only the Hedjaz but also Iraq, Transjordan and Palestine.

There is no doubt that Ibn Saud is the Arab Cromwell of to-day. He stands for pure religion and pure living among a people who have to a large extent fallen away from their faith. Hussein's sons are kindly well-meaning gentlemen but they are essentially weaklings. Ibn Saud is a strong man whom we can afford to accept and respect as an ally. Under him our frontiers against the Turks and on the Persian side, where Bolshevism may penetrate, would be more secure than ever they would be under their present rulers.

It is not too late even now to make Ibn Saud a friend instead of an enemy, for his quarrel is against the clan of Hussein rather than against us. But the rest of Islam, the non-Puritanical section, would still be against him.

None can prophesy as to what will be done in Arabia but it will be interesting to see how the problem solves itself. Meanwhile it is as well to have some understanding of the situation.—C. G. G.

The American Aircraft Industry.

Owing to pressure of events of great moment the article on this above subject billed on the cover has been held over until next week.



LONDON FROM THE AIR.—The West-End taken by the Surrey Flying Services' Photographic Department. Buckingham Palace is seen in the centre with the Victoria Memorial in the front. Above this is the Green Park and Piccadilly. Those with sharp eyes may be able to distinguish the offices of "The Aeroplane" in the extreme right-hand top corner. In the right-hand bottom corner is the tower of Westminster (Roman Catholic) Cathedral.

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The Secretary of State for Air.

Replying to the toast of His Majesty's Ministers at the annual banquet of the London and Suburban Traders' Federation on Nov. 24, the Secretary of State for Air, Sir Samuel Hoare, said that one of the things that he most desired during his term of office was that he should leave the air defences of London stronger than he found them when he first undertook his present duties. There was another respect in which he felt he had a definite obligation to the country and to London. He wished to see London become the air junction of the world. He wished to see all the civil air routes of Europe centring on London. It would be a great advantage to the trade of London if we could expedite and improve our airway communications, particularly with the other parts of the Empire.

[One presumes that Sir Samuel was mis-reported. Continental air routes can scarcely centre in London. It is, however, possible that London may be the grand terminal of all European air routes of any consequence.—ED.]

Sir Sefton Brancker's Tour.

On Thursday, Nov. 20, Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation, left Stag Lane Aerodrome in a D.H.50 (Siddley Puma-Aircraft Disposal Company, Ltd.), piloted by Mr. Alan J. Cobham, and accompanied by a mechanic. They will travel by stages to India in order to survey the proposed aeroplane and airship route.

It is understood that part of the expenses for the trip are being borne by the De Havilland Aircraft Co., Ltd., and the Aircraft Disposal Co., Ltd.

Although the start was kept more or less secret a large concourse of people arrived at Stag Lane to see Sir Sefton off. The machine was forced down by fog at Poix on Thursday afternoon, and reached Paris the following day. On Saturday the party flew to Cologne and on Sunday arrived at Berlin.

From Berlin the expedition will travel via Warsaw, Lemberg, Bucarest, Constantinople, Angora, Aleppo, Baghdad, Ispahan, Kerman, Dushap, Quetta, Multan, Lahore, Delhi, Allahabad, to Calcutta.

They are expected home in the New Year. The distance to Calcutta by this route is 6,700 miles.

The R.Ae.C. Racing Programme for 1925.

The Committee of the Royal Aero Club have considered the draft Racing Programme for 1925 and have passed it for submission to the Joint Standing Committee of the R.Ae.C. and S.B.A.C.

The Programme includes an Easter Meeting at Hendon, the King's Cup Race, the Aerial Derby, an International Speed Contest, the Grosvenor Challenge Cup, and the Air League Challenge Cup.

A certain number of races will be allocated to light aeroplanes. Apart from races, Certificates of Performance will be given for greatest speeds, height, rate of climb, and speed range.

[It is hoped on the best authority that at least one of these projected competitions will produce enough entries to make it worth while to hold it. If so one suggests that the event should not be held *in camera*.—ED.]

The Amsterdam-Batavia Flight.

On Nov. 17 M. Van der Hoop, Lieut. van Weerden Poelman and M. Van. den Broeke who were attempting to fly from Amsterdam to Batavia, left Rangoon for Bangkok, arriving there the same day.

On Nov. 19 they were reported to have arrived at Singora, Siam, where they were to have remained for two days in order to make all preparations for the crossing of the Malacca Strait to Medan, in Sumatra.

They arrived at Medan on Nov. 21, where they received a great welcome from large crowds. Here they were handed a telegram from the organising committee, granting them an extra sum of 15,000 florins (£1,300) as a bonus.

From Medan they flew to Muntok and on Nov. 24 they arrived at Batavia, their destination, amidst great rejoicing of the populace, which had assembled at the aerodrome some ten miles from Batavia.

The occasion was made a national holiday, and decorations were conferred on the aviators on behalf of the Queen of Holland.

It will be remembered that the Fokker F.VII left Amsterdam on Oct. 1, and that except for a forced landing near Philippopolis, in Bulgaria, which entailed the fitting of a new engine and which delayed their departure from that place until Nov. 2, the whole flight has taken only 26 days.

The engine, a Rolls-Royce Eagle IX, gave no trouble whatever. The damage done at Philippopolis was due to shortage of water, the precise cause of which is not yet explained, though evidently it was not the fault of the engine itself. Apparently the radiator sprang a leak and the engine naturally seized up solid.

The Argentine World Flight.

Major Zanni, the Argentine aviator, who was attempting to fly round the World, and who after reaching Tokio from Amsterdam was held up owing to the north Pacific ports becoming icebound, has been appointed to act as temporary Argentine Military attaché in Tokio in order to enable him to continue his flight in the spring.

Captain Sacadura Cabral.

It is with profound regret that one has to record the death of Captain Sacadura Cabral, the foremost Portuguese aviator.

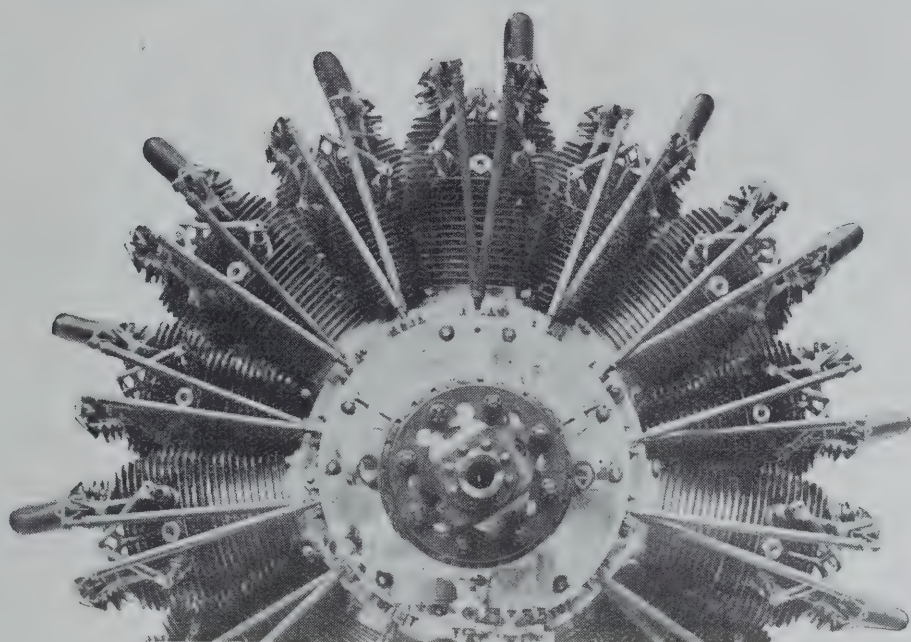
He was flying from Rotterdam to Lisbon on a Fokker seaplane last week when he disappeared. Part of his aeroplane was found floating in the English Channel, and on Thursday his body was recovered. There is no information as to how he met with his death, but the presumption is that in the thick weather prevailing during the week, he flew into the sea off the Belgian coast and the machine dived below the surface.

In 1920 Commander Sacadura Cabral flew an F.5 flying boat from Lisbon to Funchal, Madeira, and on Mar. 1, 1922, he set out on a Fairey seaplane to fly to Rio de Janeiro, Brazil. Unfortunately in alighting *en route* at St. Paul's Rocks, he crashed. He completed the flight later on another machine. After this flight he was made a captain. Prior to his death he was planning a flight round the World.

He was 40 years of age and had a distinguished career in the Portuguese Navy. On receiving the news of his death the Portuguese nation went into mourning.



"TWENTY-FIVE'S" NEW MOUNT.—The Gloucestershire Grebe II (Armstrong-Siddley Jaguar) which in its revised form has been issued to 25 (Fighter) Squadron at Hawkinge. 25 Squadron previously had Snipe. The Squadron are the present holders of the Air League Challenge Cup.



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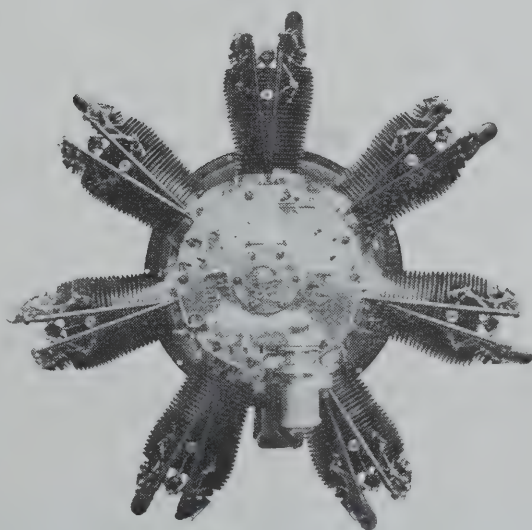
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Weight complete,
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b.h.p. ‘017 Litres per
b.h.p. hour.
Weight complete,
460 lbs., 2.9 kgs.

THE ROYAL AIR FORCE.

The London Gazette.

Nov. 18.

GENERAL DUTIES BRANCH.—The following Flg. Offs. are granted perm. comms. in the rank stated (Nov. 19):—G. G. H. Du Boulay, H. J. Gemmell, J. T. Paine. Plt. Off. E. B. Addison is granted a perm. comm. in that rank, with effect from June 14, 1922, and with seniority Dec. 14, 1920; Plt. Off. E. B. Addison is promoted to the rank of Flg. Off. (June 14, 1922).

The following Plt. Offs. are promoted to the rank of Flg. Offs.:—H. C. E. C. P. Dalrymple (April 25); A. H. Grace (July 13); J. C. Hill (Aug. 10); R. A. A. Cole (Nov. 15). Flg. Off. R. Stiven is granted the hon. rank of Flt. Lt. (Oct. 29).

The following Sq. Ldrs. are placed on half-pay, Scale B:—Lt. M. Bailey, A.F.C. (Nov. 15 to 25, inclusive); F. W. Stent, M.C. (Nov. 20 to 25, inclusive). Sq. Ldr. P. R. Burchall, O.B.E., is placed on the retired list (Nov. 15).

The following are transferred to the Reserve, Class A:—Flt. Lts.—H. S. Shield, M.C. (Nov. 19); J. F. Stallard (Nov. 17). Flg. Off.—A. F. Wynne (Nov. 15). Flg. Off. C. B. Bond resigns his S.S. comm. (Nov. 19); Flg. Off. (hon. Flt. Lt.) A. J. Carlielle (Capt., R.A.S.C.) relinquishes his temp. comm. on return to Army duty (Nov. 14).

STORES BRANCH.—The following Flg. Offs. are granted perm. comms. in the rank stated:—N. W. Law, H. J. Young, M.B.E. (Nov. 19). Flt. Lt. J. R. Nicholls is placed on the retd. list on account of ill-health (Nov. 19). The following are granted perm. comms. for accountant duties as Plt. Offs. on probation:—C. E. Aston, H. J. Titherington, K. E. M. Holmes, J. M. Murray, C. F. Goatcher, C. Lorimer, E. Smith (Nov. 19).

CHAPLAINS' BRANCH.—The Rev. F. G. Sutherland is granted a S.S. comm., with the relative rank of Sq. Ldr. (Nov. 19).

RESERVE OF AIR FORCE OFFICERS.—The following Plt. Offs. are promoted to the rank of Flg. Off.:—R. F. Cathrow (Oct. 21); L. Motley, D. L. H. Williams, A. V. Blunt, J. G. Butt, C. H. H. Downing, G. H. E. Roxburgh (Nov. 18). The following Plt. Offs. are confirmed in rank, with effect from dates indicated:—C. F. D. Evans (Oct. 18), J. J. Scholes, W. E. Taylor (Nov. 13).

Flg. Off. J. A. H. Savage is transferred from Class B to Class C (Oct. 23); Plt. Off. C. O. Hinks is transferred from Class A to Class C (Nov. 18); Flg. Off. E. Jackson relinquishes his comm. on account of ill-health, and is permitted to retain his rank (Nov. 19); Plt. Off. R. H. Leavey relinquishes his comm. on account of ill-health (Nov. 19).

Appointments.

Week ending Nov. 24.

GENERAL DUTIES BRANCH.—Wing Commanders W. H. Primrose, D.F.C., to H.Q., Iraq, for Air Staff (Armoured Car) duties, 1/11. G. C. St. P. de Dombasle, O.B.E., to R.A.F. Depot pending disposal on transfer to Home Estab., 18/10.

Squadron Leaders A. H. Measures, O.B.E., to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 18/10. A. Levick, O.B.E., and A. T. Harris, A.F.C., to R.A.F. Depot on transfer to Home Estab., 18/10. F. E. Sandford, A.F.C., to No. 4 F.T.S., Egypt, 9/11. W. H. de W. Waller, A.F.C., to Heliopolis Details, Egypt, 1/12. T. F. Bullen, O.B.E., to R.A.F. Depot on transfer to Home Estab., 1/11.

Flight Lieutenants R. B. Mansell, O.B.E., H. W. Woollett, D.S.O., M.C., J. W. Jones, A. L. Paxton, D.F.C., and J. Whitford, to R.A.F. Depot on transfer to Home Estab., 1/11. R. Jope-Slade, D.S.C., B. J. W. Brady, D.S.M., and W. L. Fenwick, to H.Q., Iraq, 1/11. M. D. Nares, A.F.C., to R.A.F. Depot on transfer to Home Estab., 5/11. H. G. Bowen, M.B.E., W. E. C. B. Forsyth, and H. I. T. Beardsworth, to R.A.F. Depot on transfer to Home Estab., 18/10. L. O. Brown, D.S.C., A.F.C., to No. 24 Sqdn., Kenley, on transfer to Home Estab., 18/10. A. Durston, A.F.C., to R.A.F. Depot on transfer to Home Estab., 5/11. J. A. Slater, M.C., D.F.C., to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 18/10. A. J. G. Styran, M.C., A.F.C., to Arm. and Gunnery School, Eastchurch, 1/12.

Flying Officers J. D. S. Denholm, L. H. Stewart, and R. H. S. Mealing, to H.Q., Iraq, 1/11. W. Anderson, to Aircraft Depot, Egypt, 1/11. R. S. Walter, R. V. D. White, and A. I. Harris, to R.A.F. Depot on transfer to Home Estab., 5/10. F. K. Damant, D.F.C., F. T. Jacobs, W. Morgan, J. P. Hinks, and H. J. Toye, to R.A.F. Depot on transfer to Home Estab., 1/11. C. F. Sealy, to Arm. and Gunnery School, Eastchurch, 13/11. P. H. Hunter, to R.A.F. Base, Gosport, 12/11. S. H. Reynolds, to R.A.F. Base, Calshot, 12/11. N. M. Ffrench, to No. 32 Sqdn., Kenley, 19/11. C. A. C. Fidler, D.C.M., to No. 1 Stores Depot, Kidbrooke, on transfer to Home Estab., 18/10. R. W. F. Dunning, W. F. A. Preston, and G. E. F. Boyes, to Arm. and Gunnery School, Eastchurch, 1/12. E. H. M. David, C. P. Wingfield, J. G. Shackleton, and T. J. Desmond, to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 18/10. H. S. C. Bassett, to No. 24 Sqdn., Kenley, 17/11. C. W. Usher, to No. 24 Sqdn., Kenley, on transfer to Home Estab., 18/10. G. R. Stafford, to No. 1 School of T.T. (Boys), Halton, on transfer to Home Estab., 18/10. W. F. Shaylor, V.-Croome, G. Thornton-Norris, W. N. Sherlock, P. R. Cawdell, G. H. Smith, H. A. C. Atkinson, and D. M. N. Coles, to R.A.F. Depot on transfer to Home Estab., 18/10. J. T. Hall, to R.A.F. Depot, on transfer to Home Estab., 21/10. W. J. Brown, E. C. Usher, and W. H. Phillips, to No. 481 Flight, Mediterranean, 11/11. J. L. Miles, to remain at No. 39 Sqdn., Spittlegate. H. W. Westaway, D. S. Allen, B. H. C. Russell, N. V. Moreton, J. V. Roberts, and R. G. R. Godby, to R.A.F.

Depot on transfer to Home Estab., 21/10. R. E. B. Rose, to No. 2 Sqdn., Kenley, 17/11.

Pilot Officers M. Russell, to R.A.F. Depot on transfer to Home Estab., 1/11. H. E. N. Burton, to No. 2 F.T.S., Digby, 11/11. F. W. C. G. Tussaud, to No. 99 Sqdn., Bircham Newton, 25/11. G. H. Loughman, to No. 24 Sqdn., Kenley, on appointment to a perm. comm. from Cadet College, 31/10.

MEDICAL BRANCH.—Flight Lieutenant (Medical) T. P. Harpur to R.A.F. Depot, 12/11.

STORES BRANCH.—Wing Commander (Stores) C. G. Smith, O.B.E., H.Q., Iraq, for Stores Staff Duty, 14/11. Squadron Leader (Stores) B. W. M. Williams, to No. 4 Stores Depot, Ruislip, on transfer to Home Estab., 18/10. Flying Officer (Stores) C. J. Elliott, to H.Q. Cranwell, 21/11.

ACCOUNTANT BRANCH.—Squadron Leader (Accountant) R. Whyte, to I.A.A.D., Henlow, 24/11. Flight Lieutenant (Accountant) J. Sullivan to Command Accounts Office, Palestine, 15/10. Flying Officer (Accountant) C. G. Prior, to No. 55 Sqdn., Iraq, 9/10.

The R.A.F. in Waziristan.

In a final despatch dealing with the operations of the Waziristan Force from April 21, 1923, to Mar. 31, 1924, on which latter date the Force, as such, ceased to exist, General Lord Rawlinson of Trent, G.C.B., G.C.I., G.C.V.O., K.C.M.G., Commander-in-Chief in India, refers to the co-operation of the Royal Air Force in the following words:—

The Royal Air Force have successfully carried out every mission entrusted to them. They have been untiring in their efforts, and have rendered every support possible to the ground troops ungrudgingly and unsparingly.

The following extract from the despatch is of interest:—

The Guri Khel and Garreraï had been giving a certain amount of trouble during the summer. The incidents for which they were responsible, although unimportant individually, had reached a total which could not be ignored collectively. Accordingly, on Sept. 14, an ultimatum was sent to them stating that if they did not come in and comply with certain specified terms, they would have to stand the consequences, which would include aerial bombing.

The Garreraï headed by Maula Dad signified their acquiescence in the terms, but the Guri Khel refused to accept them.

Aerial operations against them were therefore begun on Sept. 2, and the villages of Maresai and Zazhe Oba were bombed. The targets formed by these villages were very inadequate as a large proportion of the inhabitants habitually live in caves.

Operations were discontinued on Oct. 5, and an opportunity was given to the Guri Khel to come in. After considerable delay this small tribe eventually complied with the terms on Oct. 29, but only after a very distinct threat of a renewal of aerial operations.

Sports at Quetta.

A very successful day was spent on Oct. 3, when No. 20 Sqdn. held their Sports. These are the first Sports which have been held by this Unit since its arrival in India. There were many distinguished visitors, among them being Major-General Sir Hastings Anderson K.C.B., Commanding Baluchistan District, and Lady Anderson.

All the events were well contested, the prizes being as follows:—100 Yards: 1, L-AC. Schaashke, 10 9/10 secs; 2, Cpl. Hall; 3, Sgt. Braund. 220 Yards: 1, L-AC. Schaashke; 2, Cpl. Hall; 3, L-AC. Dews. 440 Yards: 1, L-AC. Bilner; 2, Flt. Sjt. Woollard; 3, L-AC. Dews. 880 Yards: 1, Flt. Sjt. Woollard; 2, L-AC. Bilner; 3, AC. Burrows.

1 Mile: 1, Flt. Sjt. Woollard; 2, L-AC. Hughes; 3, L-AC. Bilner. 3 Miles: 1, Flt. Sjt. Woollard; 2, L-AC. Hughes; 3, L-AC. Bilner.

Officers' Race: 1, Flg. Off. James; 2, Flt. Lt. Davidson; 3, Flg. Off. King Lewis. **Veterans' Race:** 1, Maj.-Genl. Anderson; 2, Maj. Kane; 3, Sgt. Bucknall. **Sack Race:** 1, AC. Webb; 2, AC. Walstow; 3, Sgt. Bucknall. **Boot Race:** 1, L-AC. McDougall; 2, S-M. Caswell; 3, Cpl. Butler. **Obstacle Race:** 1, L-AC. Eldridge; 2, L-AC. Page; 3, AC. Styles.

220 Yards (Open to British Troops in the Garrison): 1, Gnr. Measey, R.F.A.; 2, Pte. Hewison, I.A.F.; 3, Cpl. Hunt, 1/R.H. 1 Mile (Open to British Troops in the Garrison): 1, Gnr. Maycock, R.F.A.; 1/Cpl. Jones 1/R.H.; 3, Pte. Bailey, 1/R.H.

Long Jump: 1, L-AC. Schaashke; 2, Cpl. Hall; 3, Sgt. Braund. **High Jump:** 1, Sgt. Braund; 2, L-AC. Schaashke; 3, Cpl. Hall.

Putting the Shot: 1, L-AC. Eldridge; 2, L-AC. Schaashke; 3, Sgt. Braund. **Relay Race:** 1, "A" Flight; 2, H.Q. Flight. **Tug-of-War (Inter Flight):** "C" Flight. **Serjts' Donkey Race:** 1, Sgt. Thorn; 2, S-M. Wakeling.

Races were also arranged during the course of the afternoon for the Ladies and Children, each child being given a present at the end of the events.

A Prize was presented by Wing Cdr. Halahan for the best all-round athlete—this being won by L-AC. Schaashke.

Flt. Lt. Osborne presented a cup for the winning Flight of the afternoon, this being won by "A" Flight.

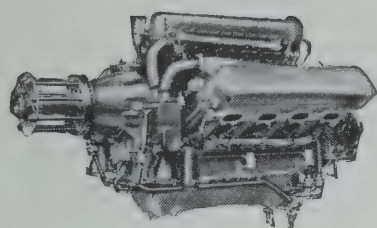
At the conclusion of the events the prizes were very kindly presented by Mrs. Halahan, wife of Wing Cdr. J. C. Halahan, C.B.E., A.F.C., Commanding the R.A.F. Station, Quetta. The Band of the 5/10 Baluchi Regiment was in attendance by kind permission of Lt.-Col. H. D. More, D.S.O., and officers of the Regiment.

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The latest type 470 H.P. Napier aero engine has recently completed a Type test of 104 hours, under the official supervision of the British Air Ministry.

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Loening Successes.

One awaits with interest disclosure of the full details and performance of the latest Loening product, the tractor amphibian flying-boat. This machine consists of a tractor biplane fuselage placed straight on top of a flying-boat hull. Its existence has been kept fairly secret in the United States, but the accompanying photograph having appeared in the Spanish paper *Alas* one may now disclose something of its existence.

The engine is a standard Liberty inverted, and slightly altered to suit in the Loening works. With this engine the machine has a performance which is practically identical with that of the standard U.S. Army D.H. with a Liberty engine. Which means that here is a machine which is capable of alighting on lakes and rivers or a moderate sea and getting off again, or of using an ordinary inland aerodrome, and yet has the speed and carrying capacity of an Army standard general-purpose machine.

It strikes one as being a particularly suitable machine for such work as the United States trans-Continental Air Mail, in that the pilots in case of need can alight on rivers and lakes instead of bad ground, and can pick up or deliver their mails in the heart of big cities such as New York, Chicago and San Francisco instead of having to handle the mails at aerodromes which are an hour or so from the General Post Offices.

Among other recent news from America is that the Loening air yacht which was at the Baltimore Meet, and was illustrated in *THE AEROPLANE* on Nov. 19, was purchased by the Canadian Government immediately after the Meet as the result of its extremely good performance. Mr. Harry Rogers flew it from Baltimore to Montreal a few days after it was bought.

It is well to note that this particular machine is now four years old and, though it has a very fine performance, must not be taken too seriously as an example of the very latest Loening products.

A considerably newer air yacht which one saw at the Loening Works in New York has been sold to Messrs. Clifford Webster and Fred Golder who are going to operate it at Palm Beach this winter.

By way of showing what the Loening air yacht actually can do one of the type belonging to the U.S. Army went for records at Langley Field on Nov. 8 and established a new seaplane speed record by covering 1,000 kilometres in 6 hours 6 mins. 47.8 secs. That gives an average speed of 101.642 m.p.h. or 163.568 km.p.h.

Tropical Exploration by Seaplane.

Capt. Frank Hurley, the well-known traveller and explorer, is at the moment in this country giving cinematographic lectures of a recent expedition made by him with the aid of aircraft into the remote and practically unknown regions of New Guinea. Any reader of *THE AEROPLANE* who sees announcements concerning this lecture is well advised to follow it up.

The aircraft used by Capt. Hurley's expedition were a Short seaplane and a Curtiss flying boat, piloted by the late Capt. Andrew Lang (who was killed in a motor accident in May last) and Capt. Hill, R.A.A.F. A complete supply of stores, spares and fuel were carried by a parent ship which, penetrating the country up one of the great rivers, formed the base of the expedition.

From here without any adequate shelter for the machines from the tropical heat and torrential rains, aerial surveys were carried out over the dense forests, thick vegetation of the impenetrable swamps and mountain ranges of anything up to 11,000 feet. Many wonderful aerial photographs were obtained of this country, as well as of the New Guinea coastline and the Great Barrier Reef, off the north-east coast of Australia, with its wonderful coral formations.

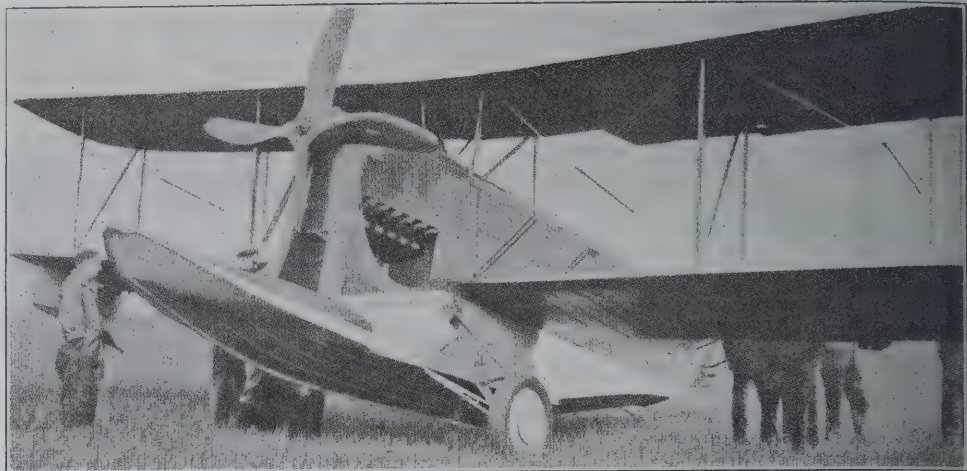
Some New Records.

The following performances set up by Herr Karl Lesch flying the Danish-built Rohrbach all-metal monoplane flying boat, type Ro.II (two 360 h.p. Rolls-Royce Eagle IX engines) over an observed course at Sund, near Copenhagen, on

Oct. 24, 1924, have been homologated by the F.A.I. and are now classed as World's Records:—

Class C bis (seaplanes):—Speed over 500 kms., 156.69 km.p.h. Speed over 1,000 kms., 152.335 km.p.h.

Carrying 250 kgs. of useful load:—Distance covered without landing, 1,102 kms. Speed over 100 kms., 159.151 km.p.h. Speed over 200 kms., 158.834 km.p.h. Speed over 500 kms. 156.699 km.p.h. Speed over 1,000 kms., 152.335 km.p.h.



A HIGH PERFORMANCE AMPHIBIAN.—The new Loening flying-boat with Inverted Liberty engine. With the amphibian undercarriage its performance is equal to that of the standard D.H.4 of the U.S. Army with the same engine.

The Future of the Zeppelin Works.

A correspondent of the *Daily Express* at Geneva is responsible for a statement that the Allied Governments will not insist on the demolition of the Zeppelin Works at Friedrichshafen, which, according to the Treaty of Versailles should occur shortly after the delivery to the U.S. Government of Z.R.3. The same authority hints that France must take control of the works, and in the same journal it is alleged that there is a movement in Paris in favour of French and German co-operation in the development of Zeppelin airships for commercial purposes.

All things considered there is a very strong probability that these reports will prove to have a basis in fact.

The Royal Aeronautical Society.

The next lecture will take place in the Society's Library at 5.30 p.m. on Thursday, November 27th, when Dr. C. G. Simpson, C.B.E., D.Sc., F.R.S., will read a paper on "Thunderstorms."

The late Air Commodore Maitland.

Those who knew and admired the late Air Commodore E. M. Maitland will be interested to learn that Messrs. Hodgson and Co. will sell by Auction at their rooms, 115, Chancery Lane, W.C.2, on Thursday, Dec. 11, at two p.m., the interesting and rare aeronautical engravings and books which he had collected. These include contemporary coloured engravings and aquatints of the earliest balloon ascents in France and England, and scarce books on the history of ballooning, etc. There are also *objets d'art* (including snuff-boxes, gold-watches, etc.) decorated with pictures of balloon ascents, and two balloon clocks. Numbers of photographs of modern aircraft are among the collection.

Of particular interest are the copies in MS. or corrected typescript of the Log of H.M.A. R.34. And there is an autograph presentation copy of Kipling's "Actions and Re-actions."

Catalogues may be had on application to Messrs. Hodgson and Co. Auctioneers of Rare and Valuable Books, 115, Chancery Lane, W.C.2.

New Companies.

GEORGE ENGLAND (MOTOR BODIES), LD.—Private company Registered Nov. 18. Capital £4,000 in 3,747 8 per cent. cumulative preference shares of £1 each and 5,060 ordinary shares of 1s. each. To adopt an agreement with George England (1922), Ltd., and E. C. Gordon England, and to carry on the business of motor-body and coach builders, manufacturers, builders and repairers, mechanical, motor and electrical engineers, manufacturers, builders and repairers of and dealers in engines, motors, motor-cars, motor vehicles and boats, aeroplanes, etc. The first directors are:—E. C. Gordon England, A.F.R.A.C., F.I.M.T., Walton Cottage, Hare Lane, Claygate. G. G. T. Simpson, B.A. (Oxon), 18, Inglis Road, Faling Common, W.5. R. Ince, address not stated.

The first two named are nominated by George England (1922), Ltd. The said R. Ince shall be chairman and may retain office so long as he holds 1,500 ordinary and 3,000 preference shares.

Qualification: 200 ordinary shares. Remuneration: As fixed by the Company. Solicitors: Beckingsales and Naylor, 34, Copthall Avenue, E.C. Registered office: 45, Horseferry Road, Westminster, S.W.

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Some extracts concerning the recent flight of 8,500 miles round Australia from "The Aeroplane" of May 22nd, 1924, entitled

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England to Constantinople	2,160 miles
Across the Atlantic	1,890 miles
England to Finland	1,100 miles
England to Warsaw	1,050 miles
England to Madrid	855 miles

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THE MARTINSYDE A.D.C.1.

It was announced some time ago that the Aircraft Disposal Co., Ltd., had taken over the entire rights of the late Martinsyde Co. and during the last week what may be called the first product of this fusion made its first test flights at Waddon Aerodrome. This was the Martinsyde A.D.C.1, which is in reality a Martinsyde F.4 equipped with a Siddeley Jaguar engine of 350 h.p.

It will be remembered that the Martinsyde F.4, which was produced just prior to the Armistice in 1918, was a descendant of the F.3 which, when it was designed in 1917, possessed a performance which was far in excess of anything produced during the war 1914-18. The F.3 was fitted with the 275 h.p. Rolls-Royce Falcon engine, and as this was in great demand for other machines, particularly the Bristol Fighter, the machine was not put into production, but was adapted to take the 300 h.p. Hispano-Suiza, and known thus as the F.4 was put into quantity production. Its appearance in sufficient numbers to equip existing and new squadrons was antedated by the Armistice and its adoption as the standard single-seater scout of the post-war Royal Air Force was ruled out owing to the fact that it was fitted with a French engine. In consequence, a large number of Martinsyde F.4s were handed over to the A.D.C. for disposal. Quite recently the A.D.C. decided to modernise one of these machines and the Martinsyde A.D.C.1 is the result.

With the exception of the fuselage forward of the pilot's cockpit, the engine and the equipment carried, the machine is almost identical with the F.4, but the resultant alterations

now make the machine a high speed single-seater aeroplane that is comparable with the most modern example of its class.

The principal alteration to take the Jaguar engine consists of rearranging the main longerons forward from the point of attachment of the rear centre-section struts. From this point forward to the main fireproof bulkhead, the top longerons slope upwards instead of downwards and the bottom longerons are straight. The main engine bearer plate is a standard Armstrong-Siddeley engine plate, except for a slight alteration in the angle of the four engine bolt slots. This plate is attached to the fuselage by a framework of steel tubes as shown in the accompanying sketch.

The whole machine has been practically rebuilt and in its new form the Martinsyde A.D.C.1 reflects great credit on Mr. Kenworthy, who has been responsible for the engine installation and on the A.D.C. generally for having sufficient faith in producing such a machine and also for the excellent workmanship and finish embodied in the machine.

It is yet impossible to give complete performance figures for the machine as the full tests are as yet in progress, but it is possible to say that with full load, including two Vickers guns, 1,200 rounds of ammunition and 55 gallons of petrol a speed of over 160 m.p.h. has been attained, together with a climb of 10,000 feet in 5 mins.—altogether a very creditable showing.

(Illustrations of this machine will be found on the next page.)

THE AIRSHIP REVIVAL IN BRITAIN.

On the occasion of a visit to the River Don Works of Vickers, Ltd., of Mr. J. H. Thomas, the late Colonial Secretary, which took place on Nov. 5, and of a luncheon which formed part of the proceedings, Sir Trevor Dawson, vice-chairman of Vickers, Ltd., announced that during the preceding week the firm had signed a contract for the construction of a rigid airship of 5,000,000 cubic feet capacity, or more than twice the capacity of the Z.R.3. They had acquired the two large sheds at the late Howden airship station for the erection of this ship.

The airship here referred to is the commercial one which is to be built by private enterprise—represented by the Airship Guarantee Corporation, whereof Commander Burney, M.P., is the leading light—under the scheme for the revival of airships agreed upon by the late Government during last summer.

On Nov. 6 it was announced by the *Morning Post* that a contract for the enlargement of the Cardington Airship shed to enable it to house another 5,000,000 cubic foot ship, had been placed. The present dimensions of the shed are 700 feet long by 180 feet wide. The length is to be increased to 812 feet and the height to 156 feet, the width remaining unaltered.

On Tuesday, Nov. 18, Sir Samuel Hoare, Secretary of State for Air, accompanied by Sir Philip Sassoon, Under-Secretary of State for Air, and Air Vice-Marshal Sir Geoffrey Salmond, paid a public visit to the Cardington Air Station to inspect the progress which is being made there in connection with the scheme for the revival of airships in this country.

In the course of a brief speech to the representatives of the Press who were present, Sir Samuel Hoare referred to the cessation of airship work in this country as a serious gap in our aeronautical policy, which was now to be filled. Previous work on airships had unfortunately been marked by serious disasters, and in once again embarking on the task of airship development every care was to be taken to avoid any recurrence of such set-backs. Progress might in consequence be slow, but it would be sure.

At present the Cardington shed is occupied by R.33, which is in process of overhaul, and by the skeleton of R.37, which is being demolished. R.33 is to be used for test research work and apart from purely structural overhaul is to be fitted with a very extensive set of pressure holes in the outer skins and with a multiple recording manograph which will permit of the simultaneous recording of the air pressure at over 200 points on the surface. A very comprehensive series of tests is to be carried out in order to obtain accurate data for estimating the stresses set up by air pressures in various manoeuvres. This work on R.33 will be complemented by tests on model airship hulls in the wind tunnel and it is hoped thereby that a satisfactory correlation of model figures and full-size results in the case of airships may be secured.

In addition a recording extensometer has been designed at Cardington which can be attached to the structural members of the ship which permits of recording the strains and therefore the stresses which occur in any member under given circumstances. This is being used on the frame of

R.80, which is to be loaded in diverse ways. By this means it is hoped to confirm the validity of methods which have been developed during the past few years by a panel of the Aeronautical Research Committee for computing the stresses in an airship frame.

As soon as R.33's overhaul is completed and the ship can be removed to Pulham, the reconstruction of the Cardington shed will be put in hand. As announced above, a contract for this enlargement has already been placed and it is hoped that work may be begun at the beginning of next year, and it is hoped that it will be possible to begin construction of the Air Ministry's 5,000,000 cubic foot ship by about July, 1925.

Cardington is to be used as the British terminal for the experimental airship service to India, and in addition to the enlargement of the shed a permanent steel mooring mast 180 ft. high, complete with passenger lift, is to be built there. A similar mast is to be erected in the near future in Egypt, and on Sir Sefton Brancker's arrival in India a conference is to be held to settle the site for an Indian airship base which in addition to mooring facilities will also include a shed large enough to accommodate the new ships.

The general design of this ship, which is to be known as R.101, is already well in hand, although the work is to some extent necessarily tentative because many important details cannot be settled until the experimental work with R.33 has been carried out and the results analysed.

As at present conceived, R.101 is to be 720 ft. long, 130 ft. in diameter, fitted with seven 600 h.p. crude oil engines—presumably of the Beardmore type. The gross lift will be 155 tons and the estimated disposable load 75 tons. It is of course this latter figure which is likely to be most affected by any structural modifications which are found to be necessary as a result of the experiments to be made on R.33, but the general consensus of opinion amongst those best qualified to judge is that the estimated figure for disposable load should easily be attained, if not surpassed.

The greater part of the structure is to be of stainless steel instead of duralumin hitherto invariably used for the purpose, and a new type of gas-bag fabric which does not incorporate gold-beater skin and which is believed to be indifferent to the most severe variations of climate will probably be used.

The maximum speed of the ship is estimated at 70 m.p.h., and the fuel consumption at full power at 1,750 lbs. per hour. For a stage of 2,500 miles a useful load—excluding crew, fuel and ballast—of some 20 tons is expected. It is hoped that R.101 will be completed during 1926.

R.36, which was completed in 1921 and fitted with an experimental passenger-cabin, is at present at Pulham and is also being overhauled, and it is intended that this ship shall be used for an experimental trip to Egypt which it is hoped will be carried out in the summer of 1925.

It has to be remembered that up to the present there is no practical experience of the operation of airships in tropical climates and until such experience has been obtained it is quite impossible to forecast the extent of the practical difficulties which may be encountered on the proposed Imperial Airship route. Amongst the problems that have definitely

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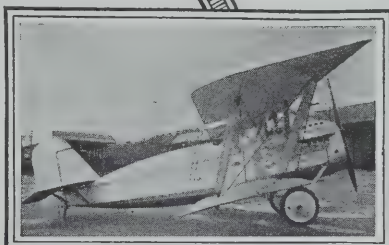


The Vickers Napier "Vulture" Amphibian.



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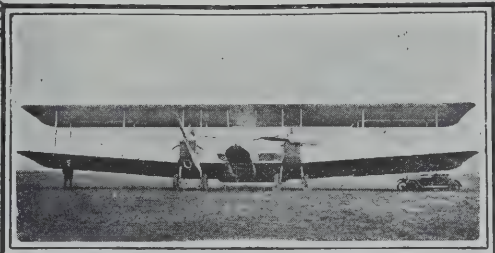
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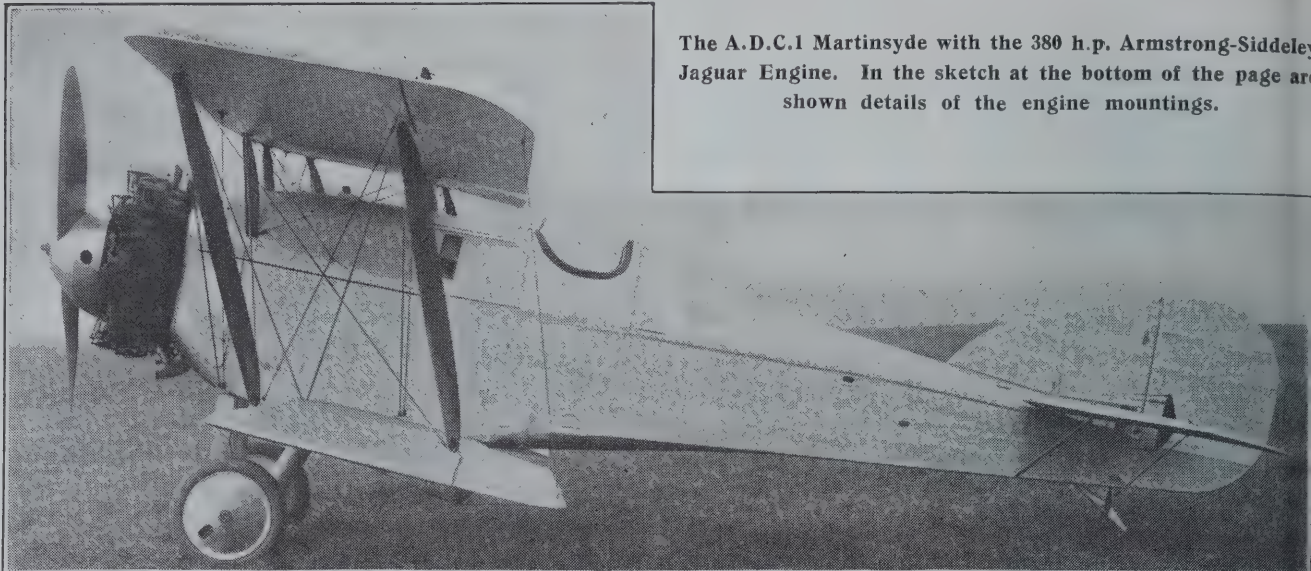
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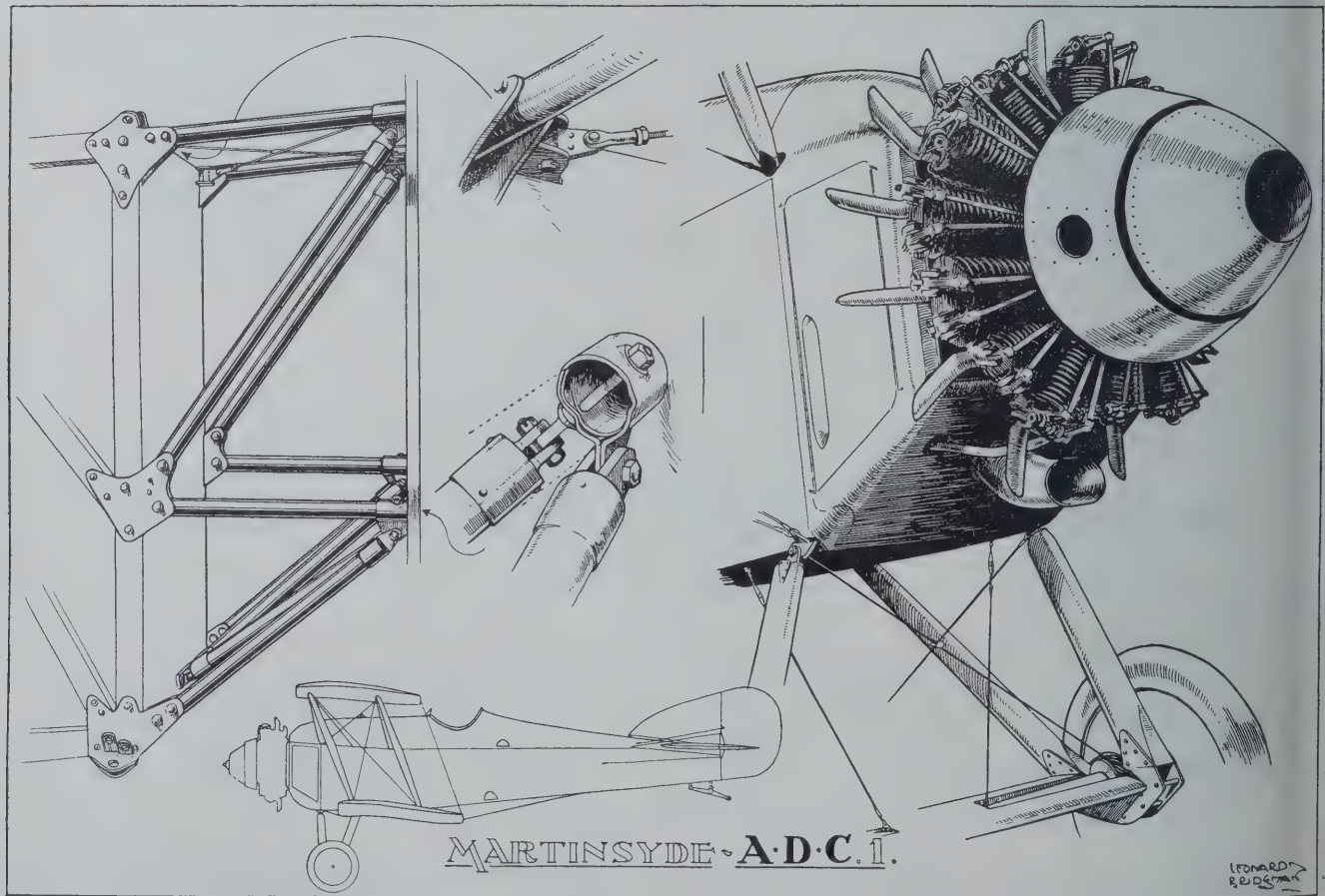
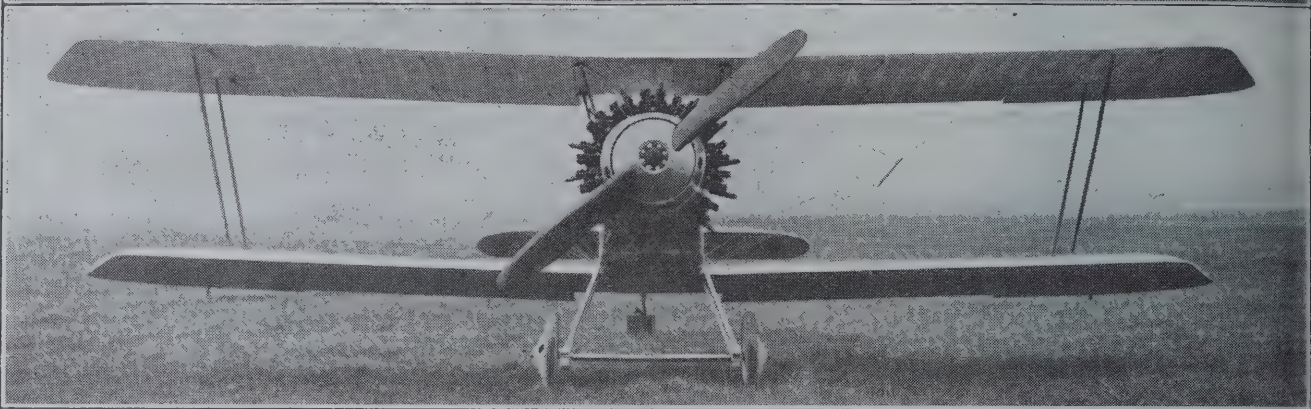
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The A.D.C.1 Martinsyde with the 380 h.p. Armstrong-Siddeley Jaguar Engine. In the sketch at the bottom of the page are shown details of the engine mountings.



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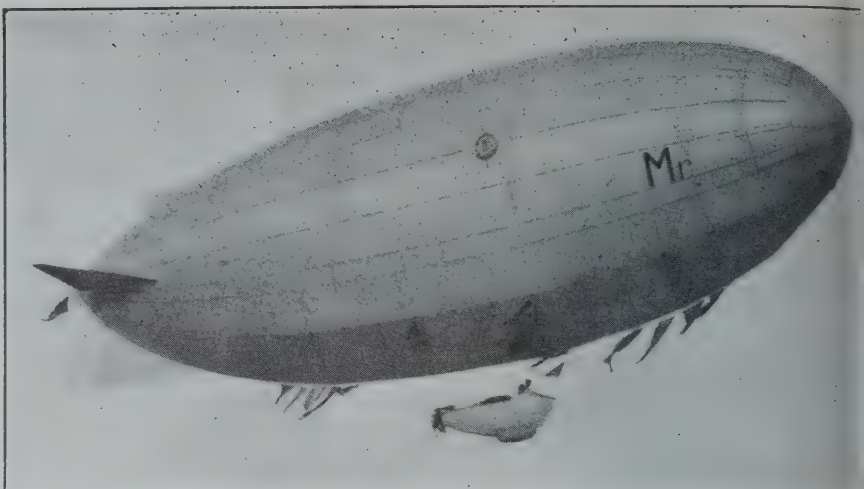
(Machine in each of above events fitted with Napier Lion engine.)

Illustrated Catalogue on application.

THE SMALLEST AIRSHIP—The photograph shows an experimental semi-rigid airship known as the *Mr* which was built at the Italian official airship works at Ciampino in the summer of this year.

The *Mr* has a total cubic capacity of just under 34,000 cub. ft. (960 cub. metres), and lifts a useful load of 1,000 lbs. which it is claimed is abnormally large for so small a ship.

The maximum speed is about 41 m.p.h., and it is thought that ships of this size, which require only a very limited shed space and are easily transported in a deflated condition, would serve a very useful purpose for Colonial service.



to be solved in this connection are those of both gas-bag and of outer cover fabric.

It has yet to be proved that a gas-bag fabric which will retain its gas-tightness when subject to the wide variation of temperature and humidity which will be encountered along the projected route can be produced. Equally important is the question of producing a cover which will protect the gas from the effects of solar radiation and permit the maintenance of a reasonably equable gas temperature.

M. Breguet on Soaring Flight.

("Le Vol à Voile Dynamique des Oiseaux." By Louis Breguet. Published by Gauthier-Villars et Cie., 55, Quai des Grands-Augustins, Paris (6e). Price, 8 francs net.)

This little book of a total of some 75 pages is adequately described in a sub-title as an analysis of the effects of pulsations in the wind on the mean resultant air force on a glider. In the introduction M. Breguet points out that it has long been recognised—outside of certain circles whose opinions can scarcely be regarded seriously—that the observed soaring flight of birds can only be accounted for on the assumption that they make use of the internal energy of the wind. In the special case wherein this internal energy takes the form of a vertical current the explanation of soaring flight is self-evident. On the other hand, the evidence that soaring flight occurs in winds which are on the average horizontal is extremely strong, and this fact has led to the promulgation of many theories—most of them, as the author justly remarks, fantastic—to account for flight in horizontal winds.

One primary difficulty which is encountered in any attempt to account for flight by the aid of the internal energy of the wind is the difficulty of acquiring reasonably accurate information concerning the structure of real winds and thereby of estimating the actual amount of energy which is likely to be available. Some degree of progress has been made in this direction recently, but no results have been attained which allow one to draw directly from them a satisfactory conclusion as to the precise mechanism of soaring flight.

M. Breguet has attacked the problem from another standpoint. He has analysed mathematically the effect on a glider of pulsations in a wind in which that glider is flying, and has shown that both vertical and horizontal pulsations have the effect of reducing the resistance and has estimated the intensity and frequency of the pulsations necessary to produce horizontal flight under given conditions. He shows that the effect of harmonics of the fundamental frequency of any pulsation are additional to those of the fundamental frequency and that the same is true of vertical and horizontal pulsations.

The conclusions at which he arrives may be summed up as follows:—Vertical pulsations sufficient by themselves to produce horizontal flight in a reasonably good glider are likely infrequently to be encountered in a natural wind and horizontal variations of velocity encountered head on cannot provide a glider with any appreciable amount of energy.

But where a glider whose wings in front elevation have the form of a very flat *M*—a form invariable in sea-going soaring birds—flies at an angle to a wind with a pulsating horizontal velocity, a very considerable gain of energy may be realised and taking into account the fact that at the same time the bird will benefit by the effect of any accompanying vertical pulsations, a rational explanation of the soaring flight of birds in a wind which is on the average horizontal is compatible with such knowledge as we already have of the degree of gustiness commonly found in reasonably strong winds.

The author claims—and the claim seems reasonable—that the results of his analysis give an adequate explanation of the disconcerting freedom of flight exhibited by soaring birds. It may be as well to state here that one may also draw the conclusion that soaring flight is not possible for a man-carrying glider under the conditions which permit it in the soaring bird, unless the glider has not only the same gliding angle as the bird, but also unless it has an equally light loading.—W. H. S.

A Long Light Aeroplane Flight.

On Oct. 29 Herr Botsch, the well-known glider pilot, flew from the aerodrome at Babenhausen, near Darmstadt, to Berlin on a light aeroplane known as the *Bag. E.1*, built by the Bahnbedarf A.G. at Darmstadt. The distance is roughly 500 km. (310 miles) and the time taken was 3½ hours non-stop. No authentic details concerning the machine are at present available, but it is said to have been fitted with a Blackburne Tom Tit engine of 696 c.c. capacity.

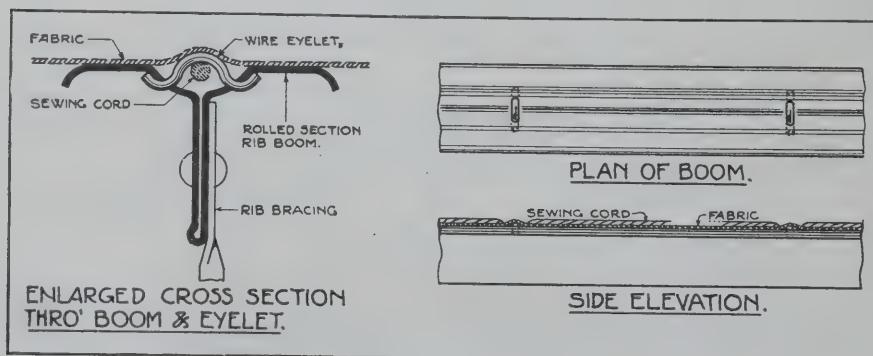
The flight was undertaken as part of the preliminary trials of a new type machine.

Attaching Fabric to Ribs.

The usual method of attaching fabric to the ribs of aeroplanes has certain disadvantages. A very great length of thread is required to form the loops right round the ribs, a good deal of time is wasted in the operation, the loops are liable to be frayed by contact with internal control or other wires. With metal ribs now coming into fairly extensive use the risk of fraying the thread on the edge of the ribs is considerable.

A method for attaching fabric, devised and protected by Mr. F. Welman, of Rochester, is shown in the attached sketches. It is particularly intended for use with metal ribs, which are built up of standard T section booms, which are fitted at regular intervals with eyelets formed of oval section wire. When the ribs are covered these eyelets can be felt and by using a slightly curved needle the fabric can be stitched on by threads running along the top of the rib.

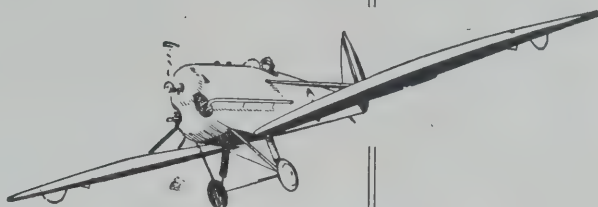
The process is much more rapid than the usual method, practically the whole length of the thread can be inspected and the interior of wings is free from obstruction.



DE HAVILLAND AIRCRAFT IN AUSTRALIA



D.H. 50.



D.H. 53.

**"THREE WEEKS
ROUND AUSTRALIA IN A D.H. 50.**
7,685 miles without an adventure.

Never, in the whole chequered history of Aviation, was a long flight so utterly devoid of adventure or uncertainty. Captain E. J. Jones, M.C., D.F.C., pilot of G-AUAB, the 240-h.p. Siddeley "PUMA" engined D.H. 50, which returned to Melbourne on August 29th, after encircling the continent in 22 days, told "Aircraft" that there had been no "scalp-raising experiences" or "trying ordeals," and that there was nothing to be said about the machine except that it was quite the best he had ever flown and was good for another ten thousand miles without any further preparation. The Engine had given the same number of revs. on the last stage to Melbourne as on the first. He would have no hesitation in starting off on a second tour of Australia that very afternoon if necessary."



**"LIGHT 'PLANES
DEMONSTRATED AT STATE
AERODROME.**

The star attractions of the day were undoubtedly the two D.H. 53 light 'planes (G-AUAC and G-AUAD) which had been flown to Essendon from Geelong. Fitted with Blackburn "Tomtit" engines of 698 c.c., they were demonstrated respectively by Captain F. W. Follett, of the Civil Aviation Branch, and Flt.-Lt. A. H. Cobby of the R.A.A.F.

Both officers did the most amazing things with the little winged mo-bikes. To report that their performance "aroused the keenest possible interest" is to employ a venerable stock-phrase, but that is precisely what happened. Everybody was most favourably impressed, and both Capt. Follett and Flt.-Lt. Cobby expressed themselves delighted with the "excellent unobstructed view," the ease of control, the general design and workmanship throughout, and with the slow landing speed which allows it to be pulled up within 20 yards."



D.H. 37.

"The record-breaking G-AUAB was by no means the only magnet. Its stable-companion, the newly imported D.H. 37 (G-AUAA) was likewise up and carrying at frequent intervals."

The above remarks are extracted from "Aircraft," the Australian technical paper, and refer in the case of the D.H. 50 to its circuit of the Commonwealth, and in the cases of the D.H. 53 and D.H. 37 to the Civil Aerial Pageant at Melbourne on Sept. 9th, 1924.

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COMMERCIAL AERONAUTICS.**The London Terminal Aerodrome.****ANALYSIS OF FIGURES FOR THE PAST WEEK**

Trips per Day.—Monday, 12; Tuesday, 12; Wednesday, 2; Thursday, 2; Friday, 15; Saturday 12; Sunday, 5.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 33, passengers 78, freight 7 tons.

AIR UNION:

Paris—London: Machines 17, passengers 38, freight 8½ tons

K.L.M.:

Amsterdam—Rotterdam—London: Machines 6, passengers 11.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 4, passengers 5

SPECIAL MACHINE:**DE HAVILLAND AIRCRAFT CO., LTD.:**

Machine 1, passengers 2. (To India.)

Total number of trips by British machines: 34, carrying 80 passengers. Foreign machines: 27, carrying 54 passengers.

Comparative Figures:

For week ending Nov. 23:

Machines, 61; Passengers, 134; Crews, 76; Total personnel, 210.

Corresponding week, 1923:

Machines, 31; Passengers, 57; Crews, 49; Total personnel, 106.

Corresponding week, 1922:

Machines, 65; Passengers, 151; Crews, 121; Total personnel, 272.

Corresponding week, 1921:

Machines, 44; Passengers, 87; Crews 71; Total personnel, 158.

Corresponding week, 1920:

Machines, 47; Passengers, 85; Crews, 57; Total personnel, 142

Croydon Notes.

Notice has been lodged of the Air Ministry's intention to apply in 1925 for an Act of Parliament empowering them to make a new road in Savoy Lane terminating in Plough Lane and to divert Plough Lane, which at present runs between the existing aerodrome and the old military aerodrome on the west side, which is being re-acquired by the Government.

On Wednesday the weather was so thick that only one machine completed a trip. This was a D.H.34 piloted by Lt.-Col. Minchin, which got through from Paris to London. This is the second time within the past two or three weeks on which Col. Minchin has been the only pilot to get through.

Mr. Olley, on a W.8b, who had been forced down at Lympne en route from Cologne the previous day went on to Paris.

On Thursday Mr. Hinchliffe on a D.H.34 and M. Portal on a Goliath, both started for Paris but were forced down by fog.

Mr. McIntosh has now left Imperial Airways and gone to the East, as reported elsewhere, and so gradually the original pilots are going. Mr. Robins left some time ago, and now of the original 1919 pilots, there is only Messrs. George Powell, Rogers, Wilcockson, Olley and Barnard left. Mr. Armstrong is of course one of the originals but he has only just returned to the fold after a long absence. If one has omitted to mention an original it is by accident and one apologises in advance.

The Aircraft Disposal Co., Ltd., have been testing the Martinsyde-A.D.C.1 (the Jaguar job) again during the week and are building new 130 h.p. Renault-A.D.C. engines. These will be described by the Technical Editor next week. By the way, the conversion of this engine was carried out in consultation with Major Halford, who was the "H" in the B.H.P. (Beardmore-Halford-Pullinger) engine, which was afterwards developed into the Siddeley Puma. Major Halford left the Ricardo firm some time ago, and is now practising as a consulting engineer on his own account.

Northern Air Lines, Ltd.

The Belfast-England air-mail service organised by Messrs. D. M. Greig and E. Higgs under the title of Northern Air Lines, is being formed into a limited company with a capital of £50,000.

At a meeting, on Saturday, Nov. 22, of the Belfast Chamber of Commerce the service was further considered. It was announced that support was forthcoming and £10,000 had already been paid up. Two D.H.9s have been bought from the Aircraft Disposal Co., Ltd., and a third has been ordered.

The service between Belfast and England will be maintained throughout the year but the terminal point in England will vary. For eight months in the year Carlisle will be the regular terminal, but for the four winter months it will be Stranraer.

The A.O.C. Expands.

The Aircraft Operating Company, Ltd., has decided to increase its activities and for this purpose its capital is being increased. The Company will be primarily concerned with the operation of aircraft, aerial surveys and air transport services.

It is also going to develop a consulting and engineering side, and for this purpose it has engaged the services of Major Mayo, O.B.E., M.A., Assoc.M.Inst.C.E., F.R.Ae.S., who was a director of Ogilvie and Partners, Ltd., but who has now joined The Aircraft Operating Co. as a director.

For the present the administrative offices will be at 8, New Square, Lincoln's Inn, W.C.2.

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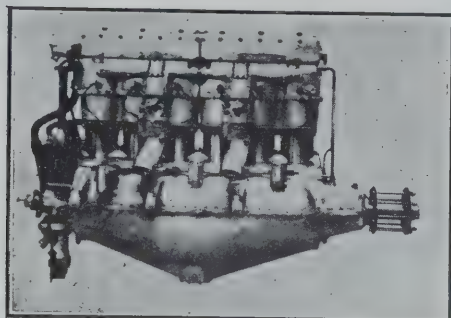
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ANOTHER "PUMA" SUCCESS.



Tests made in Belgium under the direction of Major J. Smeyers, Commandant of Military Aviation, with a D.H.9 machine fitted with 240 h.p. Siddeley "Puma" engine supplied by this Company.

Pilot : Lieut. Fabry. Passenger : Corporal Pilot Roy de Blicquy.

First Test : 22nd August, 1924.

Took Off 9.35 a.m. Landed at 6 p.m.

DURATION OF FLIGHT WITHOUT LANDING :
8 HOURS 25 MINS.

Second Test : 29th August, 1924.

Took Off 7.37 a.m. Landed at 7.40 p.m.

DURATION OF FLIGHT WITHOUT LANDING :
12 HOURS 3 MINS.

These flights were made to test the petrol and oil consumption which were for No. 1 Flight, petrol 330 litres, oil 31 litres, and for No. 2 Flight, petrol 492 litres, oil 45 litres.

After each of these flights the engine was thoroughly examined and found to be in perfect order.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Australian Air Force.

According to *Aircraft* (Australia) Mr. C. R. Fairey has presented silver models of the Fairey IID, on which they flew round Australia, to Wing Cdr. S. J. Goble and Flt. Lt. McIntyre.

Aircraft adds, "The historic seaplane now reposes within the Australian War Museum, thus reducing the effective strength of the R.A.A.F. seaplane squadron by 33 and 1-3 per cent.—Congratulations on a delicate piece of irony.

Light Aeroplane Clubs.

Lt.-Col. Darby and Mr. Perrin represented the Royal Aero Club at a Joint Meeting of Air Ministry representatives and delegates from the six Clubs selected by the Air Ministry.

Practically all the machines which competed at Lympne are being subjected to further tests at Martlesham. These tests would determine whether the 1,100 c.c. engine was suitable or not for the required purpose. In the meantime the Air Ministry were not in a position to recommend any of the two-seater light aeroplanes for purchase by the Clubs.

A general discussion took place as to the best method to be adopted to keep alive the interest already created in the various centres and the Royal Aero Club supported the proposal that the Air Ministry should allow each Club to employ part of the Air Ministry grant for the purchase of a two-seater dual-control instructional machine to tide over the period until the Air Ministry were in a position to make definite recommendations.

It was further suggested that the Air Ministry might lend standard instructional machines to the Clubs, the Clubs undertaking the Insurance. As a result of these discussions each Club was asked to send to the Air Ministry its own views on the scheme.

The Air Ministry officials having withdrawn, the delegates from the various Clubs had an informal meeting to consider the situation and it was decided that in order to allow the formation of the Clubs to proceed, the Air Ministry should be definitely asked to loan standard instructional machines, the Clubs on their part to undertake the in-

surance; or as an alternative allow part of the grant to be utilised for this purpose.

The question of the insurance of light aeroplanes was discussed and the Royal Aero Club was asked to negotiate with the Underwriters on behalf of all the Clubs.

A Dastardly Plot.

There is no truth in the suggestion that the title of the paper is to be changed from *THE AEROPLANE* to *THE SHIP*. Certain correspondents have been under the impression that this change is already a *fait accompli* and have written to the Editor as "The Editor of the Ship."

In actual fact the Editor did make an attempt to alter the title and it was only due to the threat of the staff to stop his 11 o'clock cup of Sanatogen that a serious crisis was averted.

It is well known that like poles repel and the Editor who is similar in many respects to the Admiralty (hence the repulsion) is likely to reopen the "ship tomb" at frequent intervals in the same way the Admiralty reopen the "separate control tomb" regularly.

PERSONAL NOTICES.

FORTHCOMING MARRIAGES.

BOWLER-LUXON—The marriage arranged between Sq. Ldr. T. Bowler, R.A.F., and Evelyn Mary, only daughter of Mr. and Mrs. Charles Luxon, will take place in Egypt in December.

BRETT-DAVIDSON—The engagement is announced between William James Brett, Plt. Off., R.A.F., son of Mr. and Mrs. P. Brett of Carlisle, and Rosamond Ella, second daughter of Rear-Admiral and Mrs. Percy Davidson, of The Elms, near Framlingham, Suffolk.

BIRTHS.

ELLIOTT—On Nov. 12, at Cairo, to Georgina, wife of Sq. Ldr. R. A. G. Elliott, Royal Air Force Medical Service—a son.

OSMAN—On Nov. 21, at 16, Langham Street, W., to Elsie Amy, the wife of Major W. H. Osman (late R.A.F.)—a son.

SAWYER—On 15, to Mary Bright, wife of H. G. Sawyer, Flg. Off. R.A.F., Felixstowe—a son.

Visitors to THE PARIS AERO SHOW should stay at

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The most convenient hotel
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Moderate charges.

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stop aeroplane flight of 1,880 miles.

Only Shell

has twice flown half-way round the
world.

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can assure your engine its best petrol
consumption performance and best
acceleration, as shown in the official
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is nature's mixture of Petrol and
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Instrument Chats

(No. 38.)



The Smith Eight-Day Aviation Watch is an old friend of all ex-Service Pilots, renowned for fine time-keeping under the most adverse conditions. The Smith Eight-Day Aviation Watch is built to A.I.D. specification and requirements, and supplied in special dashboard fitting case with felt cushion. Full particulars of this and other Aviation Instruments free on request.

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THE AEROPLANE



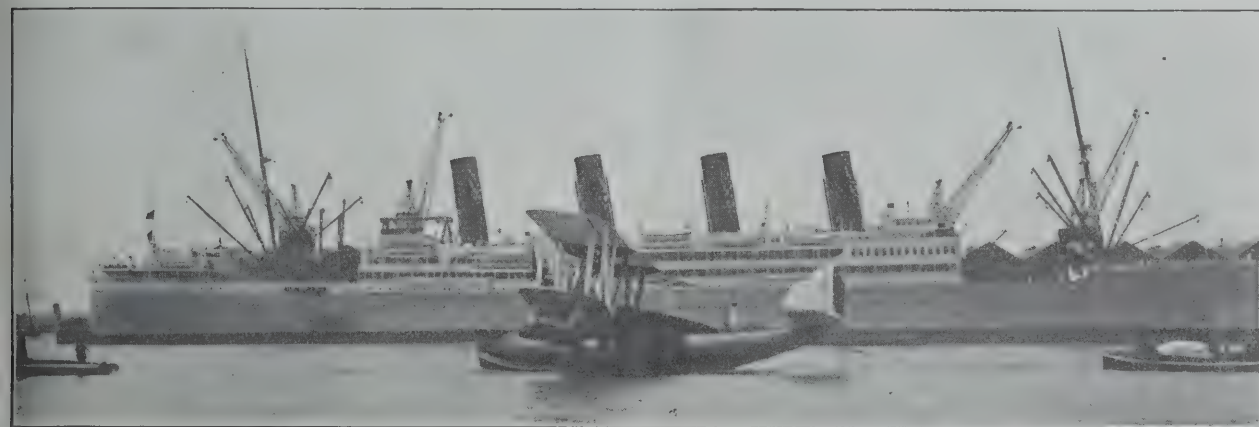
INCORPORATING AERONAUTICAL ENGINEERING



Vol. XXVII. No. 23. SIXPENCE WEEKLY.

[Registered at the G.P.O. as a Newspaper.]

"LIKE LEVIATHANS AFLOAT LAY THEIR BULWARKS ON THE BRINE."

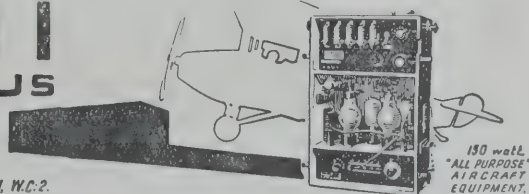


THE SWAN AND CASTLE.—This is not an hostelry but shows the Supermarine Swan (2 Napier Lion engines) moored in front of the Union Castle Line's biggest ship Arundel Castle at Southampton on the day of the visit of H.R.H. The Prince of Wales to the Supermarine Aviation Works, Ltd.

MARCONI WIRELESS APPARATUS

Is the standard equipment for British aeroplanes flying regularly on Cross-Channel air routes.

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AVRO TRAINING LANDPLANE

(TYPE 504K, MARK II).

THIS machine is a development of the famous AVRO 504K, the standard dual control training machine not only of the British Royal Air Force, but of almost every Military and Naval Air Force in the world, which machine it replaces. Among other improvements, the following are of interest: (1) A New "Oleo" undercarriage is fitted. (2) An adjustable Tail Plane arranged for dual operation, enabling the machine to be trimmed for different speeds and varying loads. (3) Altered Centre Section Plane and Wing Roots, allowing a much greater range of upward and forward vision. (4) New shape Ailerons to lighten and harmonise the lateral control with the elevator and rudder controls. (5) Direct gravity feed for petrol.

The AVRO 504, Mark II, is remarkable for its manœuvrability and ease of control,

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ON A VISIT TO AMERICA.—VI.

THE AMERICAN AIRCRAFT INDUSTRY.

[NOTE:—For the benefit of the weaker brethren in British aviation one feels that it is necessary to explain that the following article is not an advertisement for the American Aircraft Industry. It is an effort to make the personalities in the American trade better known to those concerned with aviation in the British Empire. The sooner there is a complete understanding between the aeronautical people of the two great Nordic nations the better it will be for the Nordic nations in general.]

As for the purely commercial aspect, one knows that there are many things done better in this country than they are done in America and that there are just about as many things done better in America than they are in this country. A fair exchange between the two countries can only be for the benefit of both. No good can come of boosting an English product simply because it is English. And on the other hand one is naturally the last person in the world to crack up anything which is not English on the principle of the man who is "the friend of every country but his own."

If members of the British Aircraft Industry have any doubts on this point let them consider how much better would be the position of the British Motor Trade to-day if when American automobiles began to develop certain points which were superior to those in English cars each English firm had allied itself to an American firm and had adopted the good points in the American cars and had combined them with our wonderful English workmanship. For one thing England would not have been flooded with Fords built in America as it was a few years ago, and we should have had many years ago a Ford factory in England employing English labour and probably financed by English money.

People in the British Aircraft Industry will do well to consider the benefits derived from linking up with American firms before accusing of being unpatriotic those people who already see the advantages of such a policy. Certain firms on the Continent are already forming such alliances.

And there is no reason why British firms should lose money by refusing to use foreign designs if their own designers cannot produce anything as good. Work in the shops should not be lost because of deficiency of ideas in the design-office.

Quite apart from this purely commercial view there is the greater and wider view that the English-speaking peoples must understand one another so as to be able to go side by side into the next war in which the fate of our Empires will be decided.—C. G. G.]

In the earlier articles of this series one has kept fairly strictly to descriptions of events which actually happened, with the idea of giving readers of this paper something of the atmosphere of American Aviation without saying much about the problems which the aeronautical people in the States have to face. One proposes now to give a general review of the American Aircraft Industry so that our people on this side of the Atlantic may have some idea of the firms which compose it and of the men who run them. Thus, when the time comes for us to go in and help the United States with their war against Japan the members of the British Aircraft Industry may not feel that they are dealing with strangers.

Personally one was singularly fortunate in one's introduction to the Trade in America for that never-sufficiently-to-be-esteemed person Lester D. Gardner, proprietor and publisher of *Aviation*, did one the honour of giving a party the day after one arrived in New York at which one met a dozen or more of the leading men in the Trade. Three or four of the guests at the party were quite old friends whom one had met in England during the War 1914-18. And the rest were very old friends from that time onwards.

The first thing for the English business man to get out of his head is the notion that there is any difference between the American business man and himself. The average Englishman who has not been to the States, or who has not come into contact with the chiefs of big American businesses who have been over here, is apt to think of the American business man in terms of O. Henry and the Kinema. He pictures

him in his mind either as Jeff Peters, the Gentle Grafters, or as the heavy-jowled baggy-eyed Big Business villain who is out to buy the innocent heroine with bags of diamonds. Or perhaps he thinks of him as the legendary Yankee "drummer" with a mouth full of gold teeth.

Americans of those species are as rare in America as are our stage Apaches in Paris; or as the newspaper comic Irishman is in Ireland, or as the plaid-clothed drawling haw-haw fool Englishman of the French stage is in England.

The only gentle grafter one met was a charming little man whom one knew already on paper, both of us having been interested in a feud against a common enemy. He does not sell patent medicine like Jeff Peters, but he has his own ways of making money when not interested in aviation—which is the one real love of his life. We had a most entertaining talk and he went quite a long way out of his way to give one a lift in a luxurious but not ostentatious automobile. He would have made a delightful study for the late Mr. Henry, but he is so gentle that O. H. would probably have missed him.

THE BIG BUSINESS MAN.

The only Big Business men one met were rather more like English gentlemen in appearance and manner than are most big business men in England. Their accents and intonations varied, just as, let us say, that of a big man from Glasgow might differ from that of a big man from Bristol. Some called Chicago Tchickahgo and others called it Sh'kawgo. Some spoke of Michigan others of Mishigan. That was all.

One who describes himself as a professional gambler (he has nothing to do with aircraft), has the charm of manner of a diplomat of the old school and the soothing voice of a successful doctor. He lives in a handsome mansion and by reason of his gambling all his relatives and in-laws are comfortably settled for life, so that if his gambles go against him they don't get hurt.

Another, who says that no business interests him till it has gone bankrupt or is on the verge of busting, has the brow and eyes of a poet and the jaw of a professional pugilist. And with that he has the seriously persuasive way with him of an earnest but not rhetorical clergyman, and a very attractive personality.

Yet another, whose physiognomy insists on convincing one of the fact that man is a predatory animal, is noted for doing good by stealth and blushing to find it fame. He seems to be the patron of down-and-outs and the uplifter of triers.

A CONFERENCE OF POWERS.

Just before one left America one was asked to a lunch party at which some of the biggest business interests in the States were represented. There were the Vice-President of one of the biggest railroads in America, the chief of one of the greatest law firms in New York, and members of harbour boards and big real estate interests and so forth.

They were gathered together to discuss the possibilities of aerodromes in or near New York, so as to get away from the delay of landing on Long Island—over an hour's drive from the City. They talked air transport seriously and sensibly, without over-enthusiasm and without scepticism. They just regarded it as something that has got to come, and they were concerned in discovering when.

The railway magnate said that he was prepared to make a landing-place on the roof of his terminal station when "air-planes" were ready to use it—ten years or so hence. He did not propose to do it at once nor did he regard the idea as foolish.

They all sought information from those of us who were supposed to know something of flying, and what we could tell them they discussed as plain business propositions, only they talked in millions of dollars in a way which was a trifle scaring to the editor of a newspaper which makes up its balance-sheet in shillings. One felt rather as Mr. Laughton O. Zigler in Kipling's "The Captive" must have felt when the British officers talked in continents when discussing where to send their wounded prisoner, "Old man Van Zyl," for the good of his health.

But their status in the Community and their serious out-

look on aviation showed that the big money is ready to come in as soon as flying becomes a commercial proposition. And their whole outlook was so utterly different from that at certain Mansion House meetings in London which one has had the misfortune to attend, when speakers, more or less of the type described by Stalky as "jelly-bellied flag-flappers," appealed on blatantly patriotic grounds for the financial support of half-a-dozen adipose and sudorific Yidds and a few score penniless city clerks,—and naturally got nothing.

When Civil Aviation does come in the United States it is going to come with a bang which will surprise the World. It will be something like the railway boom. And the time is not very far away. On that subject one proposes to write more in a future issue. But meantime one hopes that one has made clear the fact that American Big Business takes Aviation very seriously.

These business men were not in the least like the American as misunderstood in England. They were just like any gathering of good-class Englishman. Our excellent Air Minister, Sir Samuel Hoare, might have passed for one of themselves if he had been there. One member of the party in particular might have been mistaken at first sight for Lord Birkenhead. And they were all as friendly and free and easy in their talk as if they were of no real importance at all—which of course is the mark of the big man which differentiates him from the pompous little man who thinks he is a big man.

As for the men who run the firms which compose the American Aircraft Industry proper it is practically impossible to distinguish them from the men who run the British Aircraft Industry, especially now that horn-rimmed goggles have become an international habit.

Perhaps the best way of giving some idea of the American Aircraft Industry is to set forth the firms which compose that Industry in strictly alphabetical order and to give the briefest possible sketch of each firm:—

THE TRADE ITSELF.

The first firm in the list is the Aeromarine Company, which has always specialised on flying boats. The financial chief of the firm is Mr. Redden who is essentially a business man and one of whom a deal more will probably be heard in the future of American aviation. At the time of one's visit to America the Aeromarine Works had suspended operations, chiefly because the finances of the firm, which had been upheld by Mr. Uppercu, were in process of reorganisation and partly because Mr. Redden has come to the conclusion that as there are no immediate orders going for his class of aircraft it is just as well not to waste money on production work until there is some prospect of return for expenditure.

During the past few years the firm has run a flying-boat service regularly between Cuba and Key West in Florida with uniform success. Unfortunately there were some serious crashes in that area, in which the Aeromarine Company were not concerned, and passenger traffic fell away last winter.

Of late the firm has specialised on flying-boats with metal hulls. A very successful tour of the West Indies on one of these boats was duly chronicled in *THE AEROPLANE* earlier this year. And a small boat built for Mr. Earle Osborne has been described in detail.

The chief engineer of the firm, Mr. Paul G. Zimmermann, may be justly esteemed as the leading exponent of metal hull work. He is a young man with big ideas which are by no means too big to fulfil, and one was glad to hear that he was making arrangements to continue experimental work with metal flying-boats until such time as further developments shall make them a commercial proposition.

A small firm which is nevertheless notable is the Bellanca Company, of Omaha, Nebraska. This firm was established in 1922 to make machines designed by an Italian, Professor G. Bellanca, who is a specialist in efficiency. Mr. Bellanca left the firm in 1923 but the firm's products were represented at the Dayton Meet by a Bellanca cabin monoplane flown by Lieut.-Colonel Harold Hartney, who will be remembered with joy and affection by many people in the R.A.F.

Harold Hartney had had the machine painted yellow and was pushing it as the Yellow Air-Cab, the yellow road taxis being about the biggest concern in their line of business in the World. Unfortunately he suffered from an antiquated Anzani engine, but apart from that the machine certainly did fly wonderfully, partly thanks to careful streamlining and partly thanks to some curious wing section of Professor Bellanca's. One gathers that Colonel Hartney is endeavouring to expand the Bellanca firm and build from it a regular air taxi business.

THE PACIFIC SLOPE.

The next firm of importance in the trade alphabetically is the Boeing Airplane Company, of Seattle, Wash. Being separated from the bulk of the trade by the width of the United States the Boeing Company is regarded as being rather a thing apart by the others. Unfortunately one had no

opportunity of meeting any of the chiefs of the firm but one heard a good deal about it.

The head of the firm, known to his friends as Bill Boeing, made his money years ago in the lumber trade. Like many people on the Pacific coast he was lured into the Aircraft Industry by the advent of seaplanes, which is only natural considering that the first successful seaplane was done at San Diego, Cal., by Mr. Glenn Curtiss. Most of the early Boeing machines were seaplanes of one sort or another, the best known being one with a central float.

More recently the Boeing firm has produced a very high performance pursuit ship which seems to divide the affection of the technical people in the U.S. Army Air Service with the Curtiss P.W.8. These craft only exist in the experimental form but one gathers that production orders are going through for them.

The designer is a young engineer named Egwidt, presumably of Scandinavian origin. Nobody in the East seems to know precisely how he got his aeronautical knowledge but one was told that he must have collected it all since the War, as he is too young to have been a wartime designer. One might put him up as a kind of opposite number to our Mr. Shackleton.

Anyhow the Boeing people although they have only become prominent since the War promise to be one of the most important firms in the States. They are represented in the East by the President of the firm, Mr. George Tidmarsh.

A NOTABLE COMBINATION.

One of the most interesting firms in the States is the Consolidated Aircraft Corporation, which has just acquired works in Buffalo. The President of the firm is Mr. R. H. Fleet, who used to be the chief Contracts Officer of the U.S. Army Air Service, and the Vice-President and Chief Engineer is Mr. Virginus Clark, who was the chief engineer of the U.S. Naval Air Service.

While one was in the States the firm secured a very large contract from the U.S. Navy for training machines, a contract which apparently threw Mr. "Ginny" Clark into the depths of depression. Seemingly he had just thrown off the design of the machine as a mere pastime, and the machine when built turned out to be an excellent and very nearly fool-proof aeroplane, just the kind of thing on which pupils



THE COMMERCIAL AVIATOR.—Mr. "Casey" Jones, of the Curtiss Co., who is regarded as America's leading civil pilot. He is seen here with the cut-down Oriole with a Reed meta-
airscrow.

could not kill themselves, a feature which Mr. Clark seemingly regards as being detrimental to the efficiency of the Service.

Personally one is inclined to agree that pupils ought to be allowed to kill themselves to a reasonable extent. It makes them more careful.

At any rate one is prepared to bet that the machines will be built in the best possible way for one has yet to meet a more competent constructional engineer than Ginny Clark. One can only hope that he may ere long be given an opportunity of producing a real high-efficiency pursuit ship such as that for which his soul longeth.

On the business side Mr. Fleet certainly ought to be able to get anything in the way of Service orders that are going, for in the first place he has got good stuff to sell and in the second place he would almost argue an archangel into selling his wings and buying an "airplane." The combination is really rather wonderful and perhaps the partners will forgive one for saying that if a Christianised version of Potash and Perlmutter can be imagined they are very nearly it. In any case they are now too far away to use their guns.

THE PIONEER FIRM.

Considerably the biggest firm in the United States is the Curtiss Aeroplane and Motor Company, of Garden City, Long Island. The original of the firm was formed away back in the dark ages of 1908 by Mr. Glenn L. Curtiss, whom, rightly or wrongly, one insists on regarding as the real pioneer of flying in the United States, in that his machines got off the ground and flew by their own power while the Wright machines were still launched from a catapult and were barely able to maintain themselves off the ground.

Mr. Curtiss himself is still a Director of the firm but takes very little part in its business operations. He is one of the few pioneers who has reaped his just reward. The result is that he can afford to live happily in Florida while other people are freezing in the North and can afford to go holidaying anywhere he pleases while other people are being stewed in a New York summer.

One gathers that there are people who dislike Glenn Curtiss, but one has never been able to discover precisely why. Personally one met him first in an aeroplane shed at Reims in 1909. He struck one then as being one of the most delightfully modest and quietly humorous persons one had met. And to-day, over fifteen years later, one can find no difference between Glenn Curtiss the pioneer and Glenn Curtiss the wealthy land-owner. He does not appear to have grown any older either mentally or physically though perhaps he is older in that to-day he does but little flying. Glenn Curtiss was the first of one's friends in American Aviation and one always esteems him in that position.

The managing chief of the business is Mr. Frank Russell, a man who has the reputation in the Trade of having a pretty hard business head, though outside of business he is one of the most kindhearted and thoughtful people one has ever met. In the dim past he was business manager for the Wright Brothers and from them he came to the Curtiss Company to put it into business shape, Glenn Curtiss himself being essentially an engineer and not a business man.

Frank Russell is now the President of the Manufacturers' Aircraft Association and therefore is the titular head of the American Aircraft Industry. All one need say is that the American Aircraft Industry is fortunate.

The financial chief of the firm is Mr. C. M. Keys, a Canadian, a man of great vision and foresight who took hold of the Curtiss Company when it was in a pretty bad way as the result of cancelled war contracts and put it on a firm financial footing. There is no doubt that Messrs. Keys and Russell between them will keep the Curtiss Company in its place as the leading firm in the American Industry.

Another man who has had very much to do with the position which the Curtiss Company holds is Mr. William Gilmore, invariably known as Bill. He professes not to be a designer, but he is the chief of the Curtiss design staff and as such the success of Curtiss designs may fairly be attributed to him. Nowhere in the World has efficiency by streamlining attained the pitch of perfection which it has under the hand of Mr. Gilmore. It was he also who had the intelligence to see the possibilities of the Reed metal aircrew, which itself has had a great deal to do with the capturing of speed records by Curtiss machines.

The Curtiss successes have not been achieved entirely by attention to the ways of the air. They have been achieved also by sound engineering, for one has never seen better constructional work than that in the various types of Curtiss aircraft. It was Mr. Gilmore who was the first to fit the wing radiators which add so materially to the speed of aeroplanes and at the same time cause so much argument among air pilots.

One of Mr. Gilmore's peculiarities among aircraft designers is that he insists on flying himself. Everybody at Garden City says that he is the World's worst pilot. And



IN PURSUIT.—One of the Curtiss P.W.8 Pursuit-Ships rounding the pylon at Dayton, averaging 175 m.p.hr.

he flies an antiquated flying boat to which he has fitted an amphibian undercarriage, thus adding to his perils in the air. Nevertheless he seems to stagger off and onto the ground without hurting either himself or the machine. Personally if one owned the Curtiss Company one would keep Mr. Gilmore in some special receptacle like one of those delicate measuring instruments in scientific laboratories and one would merely take him out under guard for a little exercise every day.

The Curtiss plant on Long Island though quite big enough for any ordinary aircraft factory is regarded as being chiefly an experimental plant. The firm's production works are at Buffalo where there are in fact two distinct workshops. One of these, which is the biggest aircraft factory in the World, is shut down flat at the moment and has been let out in sections to builders of automobiles of sorts. Nevertheless it is always ready to be turned back to aircraft work when the war begins.

The other plant, at which the Curtiss engines are produced, is under the command of Mr. Roy Keys, a younger brother of Mr. C. M. Keys. Those people who like to make the least of everything have said that Roy Keys is just the younger brother of C.M. Those who know him and who have talked serious engine design and construction with him know that he is an extremely capable young engineer who so far from owing his position to his elder brother might very possibly be holding a much better position in some big factory producing millions of automobiles. As it is he is devoted to aircraft work, especially to aircraft engines, and he will be a most valuable asset to the American Trade when production work again begins.

When one was in America the Curtiss Company had no real production work in hand. The 25 P.W.8 pursuit ships had been delivered and so had the last of the Martin Bombers, the contract for which the Curtiss Company secured by purposely putting in a very low bid, an action which according to trade gossip cost them many tens of thousands of pounds. There was however some very interesting work in progress, notably a general purpose Army machine with an all-metal fuselage and at Buffalo a modification of the famous D-12 engine which will boost the power considerably, and also quite an interesting radial air-cooled engine. Furthermore an improved P.W.8, with single-bay wings, known as the P.W.8a, has done over 190 m.p.h. in Service trim. One hopes before long to be able to record the fact that the Curtiss plants are again on production work.

THE WORLD CRUISERS.

Another firm which has come into being since the Armistice in 1918 is the Douglas Company, of Santa Monica, Cal. How

or why the chief of the firm, Mr. Donald W. Douglas, came into aviation one has not discovered, nor did one have the good fortune to meet him or any of his people, they, like the Boeing folk, being separated from everybody by the width of a continent. One believes that Mr. Douglas was with Mr. Glenn Martin in the early days.

The Douglas aircraft are naturally best known because of the Douglas World Cruisers on which six American officers flew round the World. But probably the most useful stuff turned out by the Douglas Works has been the Douglas bomber and torpedo machine.

So far as one can gather Mr. Douglas has never tried to build a fast aeroplane. At any rate all the Douglas machines which one has seen appear to be notable for going a long way in a long while. But the fact remains that they get there and they are capable of lifting an enormous weight in doing it. For example the Douglas twin-float torpedo machine seems to get off the water quite well with the full-sized Service torpedo.

Another of the Buffalo firms is G. Elias and Brother, who have built various machines for the U.S. Army, including rather an interesting training machine with a Wright Lawrance radial engine. Mr. Elias is, like Mr. Boeing, primarily a lumber man who was somehow induced into the Aircraft Industry.

SMALL BUT GOOD.

Among the small firms the Huff-Daland Company of Ogdensburg, New York, are interesting because they have achieved exceedingly good results with low-powered engines such as the old 90 h.p. OX Curtiss. The partners are quite young men with plenty of persistence and courage and no doubt when good times come in the American Aircraft Industry and adequate finance is obtainable in consequence they will do very well because they have plenty of ideas. The Fairchild Aerial Survey people have been using a Huff Daland with a Wright engine with remarkable success for their photographic work. And an H-D. has done valuable experimental work in cotton-spraying—of which more will be said at a later date.

The eminent city of Dayton, Ohio, rejoices in one aircraft firm, the Johnson Airplane and Supply Company. Mr. Johnson is an enterprising man who does quite a big business in supplying spare parts and material for aircraft of various and assorted makes. In fact he is a kind of universal provider for the various Gipsy flyers and owners of private aeroplanes who exist in quite large numbers in the States. He and Mr. Driggs recently built about the best light aeroplane in America.

ONE OF THE ELITE.

Quite one of the most interesting firms in the States is the Loening Aeronautical Engineering Corporation, of New York. The chief of the firm is Mr. Grover Loening and associated with him is his brother, Albert Palmer Loening, who was an officer in the U.S. Air Force during the War. Both the brothers are well-known and extremely well-liked in the British Aircraft Industry but their position in the Trade can hardly be understood by anybody who has not been in America.

Their workshop is actually in New York itself on the bank of the East River. It is absolutely a model workshop and might easily be taken for a test laboratory rather than for an aircraft factory. Also there never has been a Loening airplane which was the least bit like any ordinary aeroplane. And so far as one's memory serves all the Loening machines have flown and flown well.

None of them has ever been put into mass production, but the firm has always had interesting orders in hand for

experimental types and has, one believes, made money out of them. This might be quite surprising to anybody who met Grover Loening casually, for he appears to be very much more the young man about town (or the lad of the village, as the modern phrase has it), than a man of business. As a matter of fact Grover Loening is that rather rare product, an artist-engineer.

Every engineer worthy of the name likes to see an artistic job made of his design, but it is not every engineer designer who has the true artist's eye for line and for the fitness of things. As a matter of fact that is what is the matter with about 75 per cent. of the aeroplanes in the World. They are quite good engineering designs but they need editing by an artist. The Loening designs are sometimes quaint to the eye of the man who is trained on pure science but they always have beauty of line and they always look like flying machines, as differentiated from machines that are evidently just being forced through the air.

All the work in the Loening plant is done with the same meticulous regard for artistry. The finish of every minute part is beautiful and everything is put together with the care which only a real craftsman can exercise. When the Loening business grows, as it will some day, into a production factory it will naturally not be possible to maintain the present standard. But the way in which the work has started will undoubtedly influence mass production under the same control.

The Loening brothers have at the present moment an amphibian biplane (recently described in *THE AEROPLANE*) which is quite remarkable and one hopes that it will be the beginning of further successes.

A LONE HAND CLAIM.

One of the most interesting concerns in the States is that of Mr. Glenn L. Martin, at Cleveland, Ohio. Glenn Martin was one of the very early aviators, his first efforts dating from the days when the Wright Brothers and Glenn Curtiss were both flying. Glenn Martin, then a very young man, believed that there was money in exhibition flying and proceeded to fly—much against the wishes of his family.

The only person from whom he received any encouragement was his mother. Her belief in him even went so far as accompanying him on one of his exhibition tours and looking after his personal comfort during nearly a year of what is now called Gipsy Flying. One gathers that the rest of the family were somewhat surprised when Martin and his guardian angel reappeared at their home in California having lived quite well during their tour and having cleared ten thousand dollars over and above their expenses. Since then Mrs. Martin has taken an active part in all her son's business affairs and he himself always ascribes his success to her faith in him.

When aviation developed in the States Glenn Martin was roped into a combine organised by folk who wished to trade on the name of the Wright Bros. and called the firm in consequence the Wright-Martin Company. Somehow or another this concern fell to pieces and Martin set up on his own account at Cleveland, Ohio, where he has one of the most compact and well arranged factories one has seen, with the additional advantage of having its own aerodrome at the door.

The name of Glenn Martin is best known to the present generation of aviation people on account of the Martin Bomber which is the standard twin-engined bombing machine of the U.S. Army. Over this machine has occurred one of those curious affairs which happen owing to the law in the United States that aircraft contracts must be given to the lowest bidder.

Martin designed this machine and built a certain number



THE MOST EXPENSIVE AEROPLANE.—The Barling Bomber, the construction of which put the Wittman Lewis firm out of business. After that the U.S. Army Air Service spent some hundreds of thousands of dollars in persuading the monstrosity to fly.

f samples of it, which performed so well that the Army decided to procure them in quantities. Martin's own price was underbid by the Curtiss Company with the result that the Martin plant remained empty for a year and the Curtiss company (as already mentioned) lost a great deal of money on the contract.

Now the position is partly reversed and the Martin plant is beginning to get busy on a big contract for general purpose machines (that is to say, fleet spotters, bombers or torpedo-craft) for the U.S. Navy, which machines were designed by the Curtiss Company, who in turn have been underbid by Glenn Martin. But one gathers that he is not likely actually to lose money on the contract.

At any rate one hopes he does not, for Glenn Martin himself is quite one of the characters, and incidentally one of the most likeable characters, in the American Trade.

A CAPTAIN COURAGEOUS.

Many people in this country will remember James V. Martin, an American skipper, strongly reminiscent of Captain Cuttle, who learned to fly at the Grahame-White School somewhere about 1911 and later flew in Alaska. During the War 14-18 James Martin produced a number of very interesting designs in connection with aircraft, some of which were adopted in more or less modified forms by the U.S. Government. Martin himself never got any large orders and apparently never made much money out of them. The result is that ever since the War he has been carrying on a fairly intense guerilla warfare of his own, apparently against everybody who has ever been connected with aircraft contracts in the U.S. Government.

If he can ever prove his charges, or can ever get the necessary judicial authorities to believe the evidence, quite a large proportion of the Legislative Assemblies and of the Flying Services of the United States may spend a few years in gaol. But Martin himself does not apparently take the affair too seriously, at any rate it does not seem to weigh on his mind to any extent. He has merely claimed \$1,000,000 dollars in damages and is hoping for the best.

Meantime he has a nice little factory at Garden City on Long Island and in that factory there has been built during the past year a very interesting flying-boat for Mr. Vanderbilt. It has been designed by Messrs. Booth and Thurston (formerly of the Curtiss Company and later of the Wright Aeronautical Corporation) and the construction has been supervised by Mr. Kirkham who also was formerly with the Curtiss Company and was responsible for the Kirkham engine.

One had the pleasure of seeing this craft at Port Washington. It is built entirely of corrugated duralumin and to some extent its general arrangement resembles a Loening aircraft. But the wing arrangement and the general structure are full of originality. At present it is fitted with a Napier engine and one gathers that it shows considerable promise as a flying machine.

THE AMERICAN FOKKER.

A firm which is bound to occupy a very prominent place in the future of American aviation is the Netherlands Aircraft Manufacturing Company, which is the American branch of Mr. Antony Fokker's international concern. A year or so ago when Mr. Fokker definitely decided to have a local reputation and a name in the United States he fixed with his usual acuteness on Mr. Bob Noorduyn, formerly of the C.T. Company, London, as his American representative, Mr. Noorduyn being one of those happy individuals who speaks English and Dutch with equal fluency and accuracy, and incidentally knows quite a considerable amount of French and German.

As it was necessary to build in the United States Mr. Fokker and Mr. Noorduyn acquired the works at Hasbrouck Heights, New Jersey, just outside New York, formerly occupied by the Witteman Lewis firm which according to the end in the States went broke in its efforts to build the Ling Bomber in spite of a patriotic attempt to rescue them from the part of Mr. Spencer Lorillard, who himself dropped a hundred thousands of dollars over the ill-conceived effort in aeroplane design.

Evidently Mr. Fokker is not superstitious and does not believe that there is any particular hoodoo hanging around Hasbrouck Heights. At any rate Fokker machines are now being built there and Mr. Noorduyn is rapidly becoming completely Americanised, even to the extent of raising an American family.

THE FORD INTERESTS.

Another of the outstanding characters of American aviation is Mr. William B. Stout of the Stout Metal Airplane Company, of Detroit, Mich. Like sundry other famous Williams of American aviation he is never called anything other than

Mr. Stout combines a nice taste in humour with a passion for duralumin. He has built several all-metal machines and



COMPLETE AS FITTED.—The Timers' Stand at Dayton. In the back-air is seen a small airship with a Sperry Messenger attached. The aeroplane was dropped and flew to its shed.

his latest product, which appeared at the Dayton Meet, is certainly one of the most successful of metal aircraft in the World.

The Stout Company has been formed in a very original way. It is not a limited company, that is to say it does not put the mysterious word "Inc." after its name, and it has among its unlimited shareholders a group of the biggest business men in Detroit all of whose names appear in a string of imposing length on the firm's notepaper.

Among the names is that of Mr. Edsel Ford, the son of the World-shaking historic Henry, and it is probably this fact which has given rise to the continual rumours floating round the World that a Ford aeroplane is imminent. The firm has its own aerodrome, which has been cleared on a piece of land presented by Mr. Henry Ford adjacent to the administrative buildings of the great Ford plant. And it has on the aerodrome a small and very compact experimental plant equipped with the most modern machinery.

Mr. Stout's scheme is to build real commercial aeroplanes in reasonable quantities and to operate them himself, if nobody wants to buy them, until he has demonstrated beyond question that commercial aviation is a commercial proposition. And judging by the performance of the machine which was at Dayton he is within quite reasonable distance of that objective. Even if he does not reach it with the existing Stout ship he is at any rate doing very valuable work towards progress in aeroplane design.

ANOTHER PIONEER FIRM.

One of the pioneer firms of the American Aircraft Industry which is still doing well is the Thomas Morse Company, of Ithaca, New York. The firm was started by the Thomas brothers quite a while before the War, and Mr. Oliver Thomas was in the early days of the War quite well-known in England. Later the firm hooked up, as the American phrase has it, with Mr. Morse of the well-known Morse Chain firm and developed its plant considerably.

Unfortunately one did not have the luck to meet any of the present-day representatives of the firm. But one saw quite a number of their pursuit ships which have until recently been part of the standard equipment of the U.S. Army. It is interesting to note that the firm's chief designer, a Mr. Thomas who is no relation to the Thomas brothers, was at

one time with the Sopwith Company over here. And to this day the machines have a distinctly Sopwithian touch.

THE NAVY'S FAVOURITE.

A firm which rather stands out from the rest of the Trade and is an object of combined curiosity and envy is the Chance Vought Corporation, of Long Island City. Chance Vought himself is on excellent personal terms with the rest of the Trade and is Secretary of the Manufacturers' Aircraft Association, but the firm manages to get bigger orders from the Navy than anybody else without the usual process of advertising and pushing. On this point Mr. Vought is something of a humorist for at a gathering of the Trade at which one happened to be present somebody asked him whether he could tell the rest of the Trade how to get orders from the Navy. He replied that the best plan was to alter the colour of the upholstery of a standard machine and call it a new type. As a matter of fact the Vought machines are of distinctly good design as may be gathered from the fact that the standard Navy Vought advanced training machine with the old Wright model E engine, a type which was put on the market actually during the War, has a rather better performance than our S.E.5as. The later type with the 200 h.p. Wright radial engine is now part of the standard equipment of the Navy.

Like so many aircraft designers all over the World whose designs show the eye of an artist in their lines Mr. Vought is very nearly as keenly interested in music and the drama as he is in aircraft design.

LAST BUT NOT LEAST.

Last in the Trade alphabetically, but particularly important withal, is the Wright Aeronautical Corporation, of Patterson, New Jersey. This firm was originally formed during the War to exploit the name of the Wright brothers. Mr. Glenn Martin, as already related, was roped in to supply the necessary technical knowledge and the firm became the Wright-Martin Corporation. Then Mr. Martin cut adrift and the firm assumed its present name or something like it.

Ultimately the firm dropped the making of aircraft and concentrated on engines, its leading model being very much like the Hispano-Suiza. The Wright model E.IV (200 h.p.) engine is in fact a development of the Hispano, or as it is generally called in the States the Hiso. From that has been developed the Wright Model T.3, a 650 h.p. which has now passed its type tests and recognised as being one of the finest engines in the World.

Some little time ago when air-cooled engines first threatened to become popular the Wright Corporation cast about to find a satisfactory air-cooled job and fixed on the Lawrance engine which had hitherto been built rather more as an experiment than as a production engine. The chief of the Lawrance Company was Mr. Charles Lawrance, a young sportsman belonging to one of the best families in the States who instead of wasting his substance on riotous living chose to become an engineer. For years he devoted himself to the design and production of things mechanical and after the War he concentrated his attention on air-cooled engines for aircraft.

The success which he won with his small 60 h.p. engine was so great that the Wright Corporation persuaded him to cast in his lot with them and he is now the Vice-President of this important firm. Where everybody was so friendly and generally charming one cannot draw distinctions, but one can say that personally one found nobody in the States more agreeable than Charles Lawrance and one feels sure that when in due course he pays this country a visit he will be very well liked by the best people in our Flying Services and in the Aircraft Industry.

The Wright Corporation is also fortunate in having in its service Mr. G. J. Mead, a designer who although quite young has enough ideas and experience to place him right in the front rank of aircraft engineers.

The Wright Corporation are making aeroplanes as well as engines but without any intention of competing directly with aircraft manufacturers to whom they hope to sell their engines. Their chief idea is to demonstrate by means of aeroplanes of their own designs precisely what can be done with the Wright engines.

Those machines which they have built have put up very good performances but the seaplanes which they built for the Schneider Competition last year and this year both crashed through no fault of their own before the trials and consequently they have not figured in the big events. Nevertheless the work which is being done in the Wright aeroplane shops is worthy to compare with the finest of its kind in the World. Altogether one knows that the Wright Corporation will play a very important part in the future development of American aviation.

THE REST.

There are of course sundry other firms in the States who

manufacture aircraft in a small way, and frequently they a very good aircraft, as for example the Laird, founded by M. Laird, who was originally the Swallow Aircraft Manufacturing Company. The Swallow Company started in Wichita (pronounced Wishy-taw), Kansas, but Mr. Laird is now building in Chicago and the Swallow Company are remaining in Wichita. Both firms are building extraordinarily neat small machines with the old 90 h.p. OX Curtiss engine which covered with a cowl that makes it look like a Hispano-Suiza.

Then there are the Lincoln Standard Aircraft Corporation of Nebraska, and the Longren Aircraft Corporation of Topeka, Kansas. And Mr. Mummert, formerly an engineer in the Curtiss Company, is building a light aeroplane. And the Remington-Burnelli Company are still working at the huge twin-engined machine with an aerofoil fuselage. And Mr. Sikorski, formerly of Petersburg, Russia, has managed to lay hands on enough sympathetic wealth to build some sort of a twin-engined machine. And the Advance Aircraft Company, of Troy, Ohio, are building the Waco (Wawco) passenger-carrying machines. And besides them there are heaps of people, like the energetic Mr. Yackey, of Forest Park, Ill., who are converting the old "Jenny" Curtiss and Thomas-Morse and such things into quite modern-looking passenger machines.

But the firms which one has discussed at length constitute practically all the people whose activities are of immediate importance in the American Aircraft Industry with the exception, perhaps, of the Packard Company, the well-known motor-car firm, who have been building experimental aeroplanes for some years and have now got an engine which they believe will lick creation. However so far as one can gather no example of this engine has yet taken an aeroplane into the air and one well-known aircraft builder who was instructed to fit such an engine into an experimental machine pleaded to have it taken out because he did not want to try two experiments at the same time. Nevertheless Major Vincent of the Packard Company is responsible for at least half of the success of the Liberty engine so one may fairly bet on the Packard being a good engine when makers consider that it is a finished job.

IMPOSSIBLE RECIPROCITY.

In the foregoing remarks one has endeavoured as far as possible to give the British Aircraft Industry some kind of knowledge of the leading personalities in the American Aircraft Industry. One hopes that one has done it without giving any offence to those people in the United States who were so extraordinarily kind during one's visit.

One would like to reciprocate by giving the American Aircraft Industry a similar series of sketches of the British Industry but knowing how touchy the indigenous Englishman can be about himself one fears that it would be impossible to do so with any consideration for one's bodily and financial safety.—One's secretary remarks at this point, "Don't do that and get all our advertisements cancelled just before the Aero-Show."

On the whole therefore one thinks that it will be better if Mr. Lester D. Gardner will come over here and look round the English Aircraft Industry and then go home and tell us the truth about ourselves. Thus we may arrive at something like reciprocal enlightenment. And thus when the war begins the people in the Trade on each side of the Atlantic may have some idea of the people with whom they will have to deal on the other side.—C. G. G.

Sir Sefton Brancker's Co-operative Tour.

The following letter has been received:—

The De Havilland Aircraft Co., Ltd.

Nov. 27, 1924.

Sir,—In to-day's AEROPLANE you were kind enough to mention that part of the expenses of Sir Sefton Brancker's tour are being shared by the Aircraft Disposal Company and ourselves. This is not quite the whole picture.

The very heavy expense of carrying out this expedition is being only partly borne by the Air Ministry, the large remaining expense is being shared between the Society of British Aircraft Constructors (every member of which is contributing), Imperial Airways, Ltd., Sir Charles Wakefield and the Anglo-Persian Oil Company, as well as by the A.D.C. and ourselves.

If you should find suitable opportunity it would be very nice to mention the sporting way in which the trade has come forward to make this tour possible.

(Signed) F. N. ST. BARBE.

One is very glad to be able to publish this evidence of the thoroughly sporting way in which the whole Trade and sundry interested persons outside the actual manufacture of aircraft are supporting this historical journey. But it occurs to one that the aspect of the whole affair would have been improved if it had been an official Air Ministry tour of inspection and not a sort of flying charity matinee.—C. G.



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE ROYAL AIR FORCE.

The London Gazette.

Nov. 25.

GENERAL DUTIES BRANCH.—The following are granted perm. comms. in the ranks stated (Nov. 26):—Sq. Ldr.—E. J. P. Burling, D.S.C., D.F.C. Flt. Lts.—N. L. Desoer, R. K. D. Robertson, A.F.C., A.C. Stevens. Flg. Offs.—J. S. L. Adams, V. B. Clift.

The following Plt. Offs. are promoted to the rank of Flg. Offs.:—V. B. Bennett, C. H. Ratcliffe, R. R. S. Waller (Feb. 16); N. Carter (June 20). The following Plt. Offs. on probation are confirmed in rank (Oct. 27):—F. T. Stacey, H. W. Raeburn.

Flg. Off. P. I. V. Rippon is granted the honorary rank of Flt. Lt. (Oct. 31); Sq. Ldr. F. E. Sandford, A.F.C., is restored to full pay from half-pay (Nov. 9); Flg. Off. E. H. Oxley-Boyle is transferred to the Res. Cl. A (Nov. 26); Flg. Off. C. F. B. Bassil is placed on the ret'd. list on account of ill-health (Nov. 25).

The following resign their S.S. comms. (Nov. 26):—Flg. Off. T. M. Shields, D.F.C., Plt. Off. B. O. Babb.

STORES BRANCH.—Flt. Lt. R. A. Young is granted a perm. comn. in the rank stated (Nov. 26); Flg. Off. E. K. Greenhow, M.C., takes rank and precedence as if his appointment as Flg. Off. bore date Mar. 5, 1922, reduction to take effect from Oct. 29.

MEDICAL BRANCH.—Flg. Off. C. V. D. Rose is promoted to the rank of Plt. Lt. (Nov. 27).

RESERVE OF AIR FORCE OFFICERS.—Flg. Off. C. J. Clark is employed with the Regular Air Force for a period of two years (Nov. 21). The following Plt. Offs. are promoted to the rank of Flg. Off. (Nov. 25):—J. H. C. Wake, E. D. Ayre, A. M. Dunlop, W. L. Woodward.

The following are confirmed in rank:—Flt. Off.—G. H. Wenn (Nov. 13). Plt. Offs.—H. B. Elwell (Dec. 10, 1923); S. B. Atkinson (Nov. 20).

Appointments.

Week ending Dec. 1.

GENERAL DUTIES BRANCH.—Air Commodores R. H. Clark-Hall, C.M.G., D.S.O., to H.Q., Egypt, for duty as Chief Staff Officer, 1/12. E. A. D. Masterman, C.B., C.M.G., C.B.E., A.F.C., to No. 10 Group H.Q., Lee-on-Solent, 1/12, to command, 5/12.

Group Captain R. P. Ross, D.S.O., A.F.C., to H.Q., Coastal Area, for duty as Fleet Aviation Officer on staff of Commander-in-Chief, Atlantic Fleet, in H.M.S. *Revenge*, 14/11.

Wing Commander G. C. St. P. de Dombasle, O.B.E., to Station H.Q., Northolt, to command, 1/12.

Squadron Leaders A. T. Williams, to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 31/10. F. Sowrey, D.S.C., M.C., A.F.C., to R.A.F. Depot on transfer to Home Estab., 31/10.

Flight Lieutenants C. E. H. C. Macpherson, to R.A.F. Depot, Non-effective (Sick), on transfer to Home Estab., 1/11. C. W. Attwood, to H.Q., Egypt, 1/12. G. D. Daly, D.F.C., to No. 100 Sqdn., Spittlegate, on transfer to Home Estab., 1/11. C. Bounphrey, D.F.C., to R.A.F. Base, Calshot, 2/12. G. E. Ranson, to Armament and Gunnery School, Eastchurch, 26/11. G. H. Harrison, to R.A.F. Base, Calshot, 2/1. K. H.

Riversdale-Elliott, L. A. K. Butt, B. A. Malet, D.F.C., and J. W. Young, M.B.E., to Electrical and Wireless School, Flowerdown, 1/12. D. Price to Boys' Wing, Cranwell, on transfer to Home Estab., 8/12. McFarlane, M.C., to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 14/11.

Flying Officers W. N. Plenderleith, to Marine Aircraft Exper. Estab. Felixstowe, 18/12. A. Blackwell, to No. 1 School of T.T. (Boys), Halton on transfer to Home Estab., 12/12. E. F. Mattock, to No. 32 Sqdn. Kenley, on transfer to Home Estab., 13/12. J. J. Comerford, to No. 1 Sqdn., Northolt, 16/12. F. Porter, J. S. Nichol, F. W. Foster, D.F.C. D.S.M., R. Stiven, (Hon. Flt. Lt.) J. C. E. A. Johnson, and J. R. Brown, to Electrical and Wireless School, Flowerdown, 1/12. G. S. White, to R.A.F. Depot on appointment to a S.S. comn., 24/11. G. H. Mills, and R. D. Whelan, to No. 12 Sqdn., Andover, on transfer to Home Estab., 18/10. J. C. Hawtrey, to No. 11 Sqdn., Netheravon, on transfer to Home Estab., 18/10. R. B. Jordan, to No. 2 Sqdn., Manston, 9/11. R. J. Copley, to R.A.F. Depot on transfer to Home Estab., 19/11, and to Air Ministry, 1/12. G. Lambourne, to H.Q., Egypt, 1/12. C. J. Colingwood, to R.A.F. Depot on transfer to Home Estab., 1/11.

Pilot Officers H. M. S. Wright, to Armament and Gunnery School, Eastchurch, 26/11. H. L. R. Gough, to No. 13 Sqdn., Andover, 1/11. C. H. P. Morgan, to No. 11 Sqdn., Netheravon, 2/12.

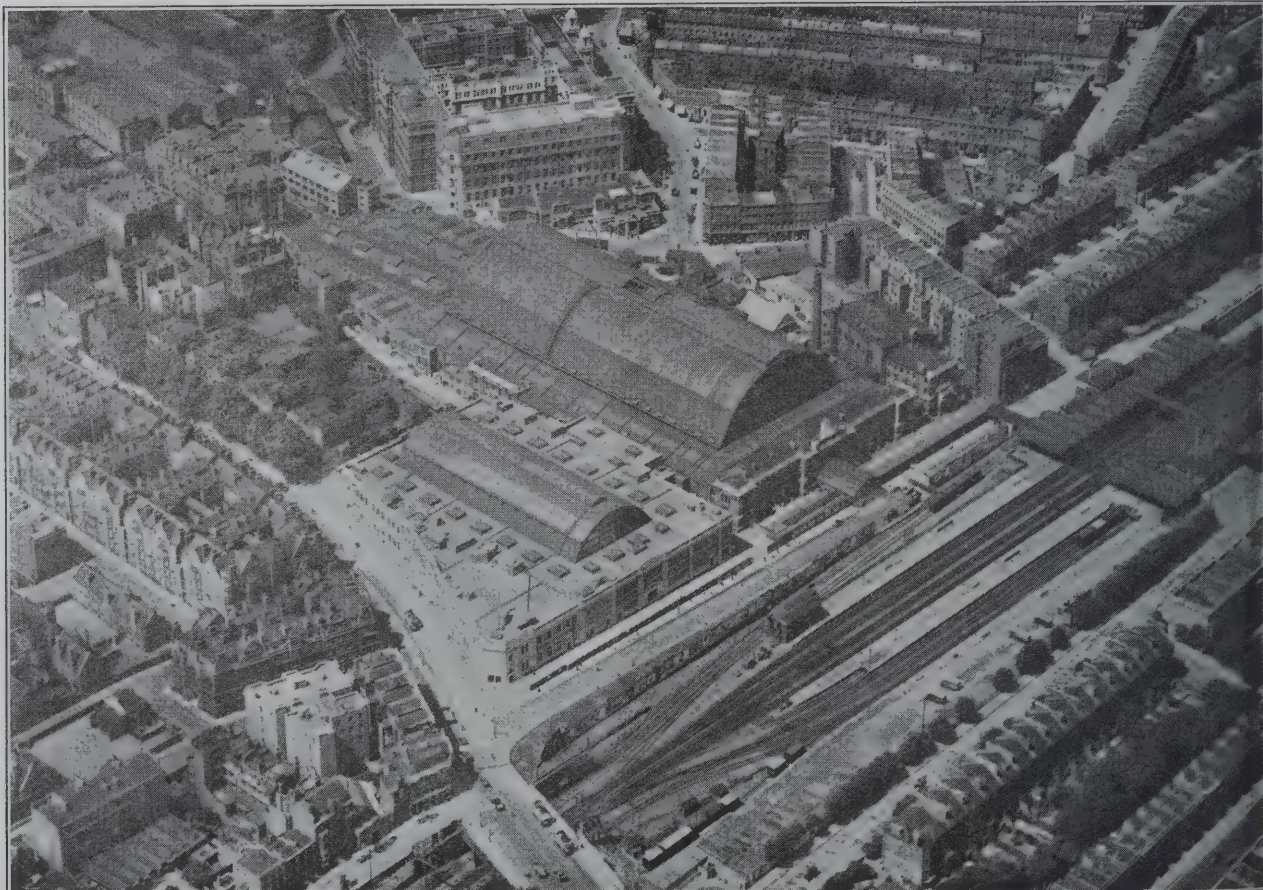
MEDICAL BRANCH.—Group Captain (Medical) H. Cooper, D.S.O., B.A., to R.A.F. Depot on transfer to Home Estab., 18/10. Wing Commander (Medical) H. A. Treadgold, M.D., B.A., to R.A.F. Depot on transfer to Home Estab., 18/10. A. S. Glynn, M.B., to R.A.F. Depot (Non-effective Pool) on transfer to Home Estab., 14/11. Squadron Leader (Dental) D. Blair, to R.A.F. Depot on transfer to Home Estab., 1/11. Flight Lieutenants (Medical) T. J. Thomas, M.B., A. Briscoe, M.B., and I. Boog-Watson, M.B., D.F.H., to R.A.F. Depot on transfer to Home Estab., 18/10. C. McC. Jones, M.A., to R.A.F. Depot on transfer to Home Estab., 1/11. Flying Officers (Medical) W. A. Beck, M.B., D.P.H. and J. Parry-Evans, to Research Lab. and M.O.S. of I., Hampstead, on appointment to S.S. comms., for short course, 19/11.

STORES BRANCH.—Squadron Leader (Stores) F. A. Baldwin, to H.Q., Egypt, 1/12.

CHAPLAINS' BRANCH.—The Rev. H. Thomas, B.A., to No. 5 F.T.S., Sealand, on transfer to Home Estab., 1/11. The Rev. F. G. B. Sutherland, to H.Q., Cranwell, on appointment to a S.S. comn. for duty as Chaplain (R.C.), 10/11.

The Lord Thomson on the Middle East.

In the course of a lecture on "My Impressions of a Tour in Iraq," at a meeting of the Central Asian Society at the Royal United Service Institution on Nov. 21, Lord Thomson, the Secretary of State for Air in the last Government, said that there had been three events of outstanding importance before and during his tour. The first was the Wahabi invasion of Transjordan, in the course of which was fought the



LONDON FROM THE AIR.—Olympia taken by the Photographic Department of the Surrey Flying Services. The new building can be seen clearly on the left of the main nave and the annexe is at the back. In front is Addison Road Station. Olympia has been the home of all Aero Shows held in England. Some day there may be another.

The Directors of the Bristol Aeroplane Co., Ltd., of Filton, Bristol, invite those interested in the latest and most efficient aircraft engines to visit Stand No. 51, at the Paris Aero Show where the various types of

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are exhibited. Full information concerning the technical features, records and supply of these engines of the

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may be obtained upon the Stand.

The 400 h.p. "Bristol" Jupiter Engine

was the FIRST aircooled engine to pass the British Air Ministry Type Tests. Since then it has carried out an official Type Test on a second occasion and has twice successfully completed 50 hour official tests for the French Government. In both Great Britain and in France it has been successfully submitted to searching tests of 150 hours under Government supervision—a record equalled by no other aero engine.

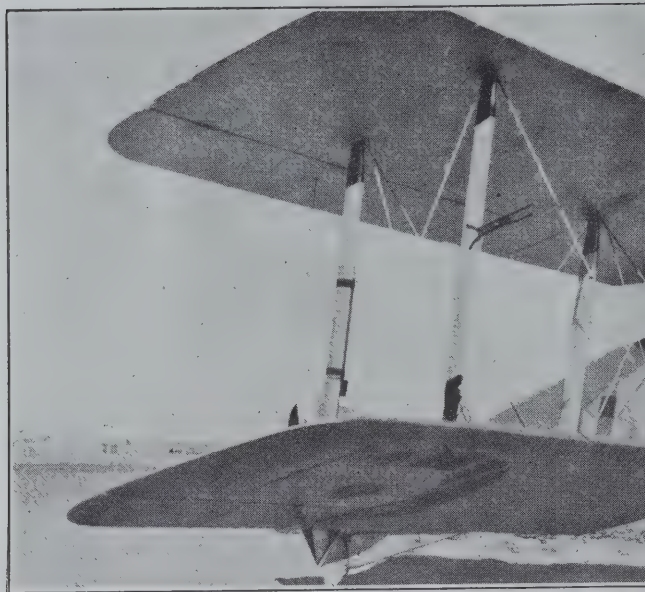
The 100 h.p. "Bristol" Lucifer Engine

was the FIRST engine of its power to pass the British Air Ministry Type Tests and is still the only engine of its category to have done so. There is no other engine available for flying school work which can show a record for reliability and efficiency in any way comparable with the Lucifer engine.

The 1095 c.c. "Bristol" Cherub Engine

was not only the FIRST engine for light aircraft to satisfy the Type Test schedule of the British Air Ministry, but at the Lympne Light Aeroplane Competitions (the only Competitions in which this engine has participated), 6 of the 7 prizes offered, including every first award, were taken by aeroplanes fitted with "Bristol" Cherub engines.

Telegrams:—"Aviation, Bristol."
Telephone :—3906 Bristol.



IN THE DESERT.—A Gloucestershire Mars VI (Bristol Jupiter engine) in Iraq. A batch of these machines, commonly and erroneously called "Nighthawks" in the R.A.F., has been issued at the rate of one per squadron to be flown experimentally to see how they and their engines stand the climate and conditions of service in the heat and dust of Iraq.

Lord Thomson described as one of the small decisive battles of the World.

The action took place about six miles from Amman, a host of hostile Arabs having marched on that town without any sort of warning. At the shortest possible notice the aeroplanes arrived from Amman, reinforced from Palestine and backed by armoured cars. The effect of this attack on the invading army was appalling. Some 700 of the tribesmen were killed and the rest seized with panic fled into the desert where hundreds of them must have died of thirst.

Lord Thomson said that unless some such swift and terrible action had been taken the task of restoring order would have been very long drawn-out and in the end far more costly in lives and money, and the results would not have been so lasting.

There were a good many prisoners taken. They were given a month's hard labour building houses and were then sent back with messages to their people telling them what would happen if these frontiers were violated again. The prisoners said that they had been told that the aeroplanes were there but they would not be used against them.

The second important event was the trouble on the Turkish frontier near Mosul. The Turks were out to punish some Assyrian Christians for having insulted one of their Governors. It was inconvenient for the Turks to reach the particular locality they aimed at from the North. They therefore crossed part of the mandated area of Iraq. Their troops were bombed. They expected it as part of the day's work while they were in the British zone. No Turkish soldier had any complaint to make about the bombing while in this particular territory. They knew they were guilty of a trespass.

The third incident was the invasion of the Hedjaz. He had talked about this to King Feisal and the Emir Abdullah. These invasions had made King Feisal very anxious to make Iraq a self-supporting country.

Speaking of the Arab troops, Lord Thomson said that the Arabs were too nomadic and unruly a people to make a good army by themselves. They would always need a stiffening of British officers.

Then there were the Kurds. The Kurds were wobbling, and although they preferred our rule to that of the Turks they were not to be trusted.

With regard to the Assyrians our promises to these people must be carried out but the fact that they were not rebuilding their houses and barns showed that they were not becoming a settled and peaceable people.

Lord Thomson said that we must at all costs honour our pledge to make Iraq an independent State, and this could only be done by remaining in the country until it could defend itself. The result of leaving it would be confusion and anarchy. The questions of developing the resources of the country in oil and wheat could not even be considered until internal security was firmly established.

[This seems to dispose happily of our alleged plea to vacate Iraq within four years.—ED.]

The R.A.F. in Iraq was like the cement which kept together the loose bricks of the various tribes.



The R.A.F. Staff College.

The following R.A.F. Officers, who have passed the necessary qualifying examination, have been selected for the Fourth Course at the R.A.F. Staff College which commenced on May 4, 1925:—

Wing Commander D. I. Allen, A.F.C.
Squadron Leaders T. I. Leigh-Mallory, D.S.C., C. H. B. Blomfield, O.B.E., M.C., C. H. Nicholas, D.F.C., A.F.C., G. C. Bailey, D.S.O., E. A. Beulah, and C. E. H. Medhurst, O.B.E., M.C.
Flight Lieutenants Hon. R. A. Cochrane, A.F.C., J. K. Watkinson, D.S.C., W. F. Anderson, D.S.O., D.F.C., T. F. W. Thompson, D.F.C., Orlebar, A.F.C., W. H. Park, M.C., D.F.C., S. E. Toomer, D.F.C., R. P. M. Whitham, M.C., H. P. Lloyd, M.C., D.F.C., J. H. Butler, R. M. Foster, D.F.C., S. C. Strafford, D.F.C., and J. Blackford.

R.A.F. Sports Fixtures.

The following list of fixtures is issued by the R.A.F. Sports Board:—

Rugby Football:—Dec. 13, at Twickenham, Combined Services v. New Zealanders.

1925: Feb. 25, R.A.F. v. R.N., at Twickenham. Mar. 1, R.A.F. v. Army (ground not yet fixed). Mar. 21, R.A.F. v. R.U. Cup, at Uxbridge.

Association Football:—Mar. 21, R.A.F. v. R.N., at Highbury. Apr. 1, R.A.F. v. Army.

Hockey:—Feb. 18, R.A.F. v. R.N., at Portsmouth. Feb. 25, R.A.F. v. Army, at Halton.

Fencing:—Feb. 9, R.A.F. v. R.N., at Uxbridge. Feb. 15, R.A.F. v. Army at Bertrand's Academy.

Lawn Tennis:—Aug. 7 and 8, Inter-Service Championships.

Rugby Football.

The account of the following match is extracted from the *Times* of Nov. 24, with acknowledgments:—

CRANWELL v. SANDHURST.—The R.A.F. Cadet College, Cranwell, their annual match against the R.M.C., Sandhurst, at Cranwell, Nov. 22, for the first time since the series of matches was begun in 1920, by the very emphatic margin of two placed goals, one penalty goal, and four tries (25 points) to one try (3 points).

This victory, which reflects the highest credit on those responsible for the Rugby football at Cranwell (namely, Flt. Lt. Bryson and Mr. I. Dr. Stephens) where the enthusiasm for the game is a very real thing as well as, on the fifteen themselves, should undoubtedly do a great deal towards establishing firmly the annual matches between Woolwich and Cranwell, and Sandhurst and Cranwell, as only slightly less important to the Woolwich and Sandhurst match.

The greater share by far for the fine victory of Cranwell fell to the lot of a truly splendid pack of forwards, much more dashing and resourceful in the open, on the day, than their rivals, and also far better together. Their covering-up of their own or their sides' mistakes was throughout extraordinarily good, while their clearing rushes were always most effective, either in relieving pressure or in carrying play right up to their opponents' line. Indeed, four of the six Cranwell tries were obtained as the direct result of such movements. These forwards were admirably led by G. R. Beamish, who set them, and his whole side, a really inspiring example, and showed a fine sense of position, in addition to using his great strength to best advantage. But for his superb ball-control, of the kind so delightful to watch and so effective, but far too seldom seen, J. G. Frazer, whose artistry and unexpectedness frequently had his opponent

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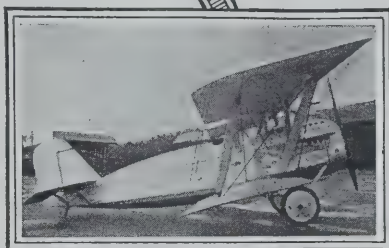


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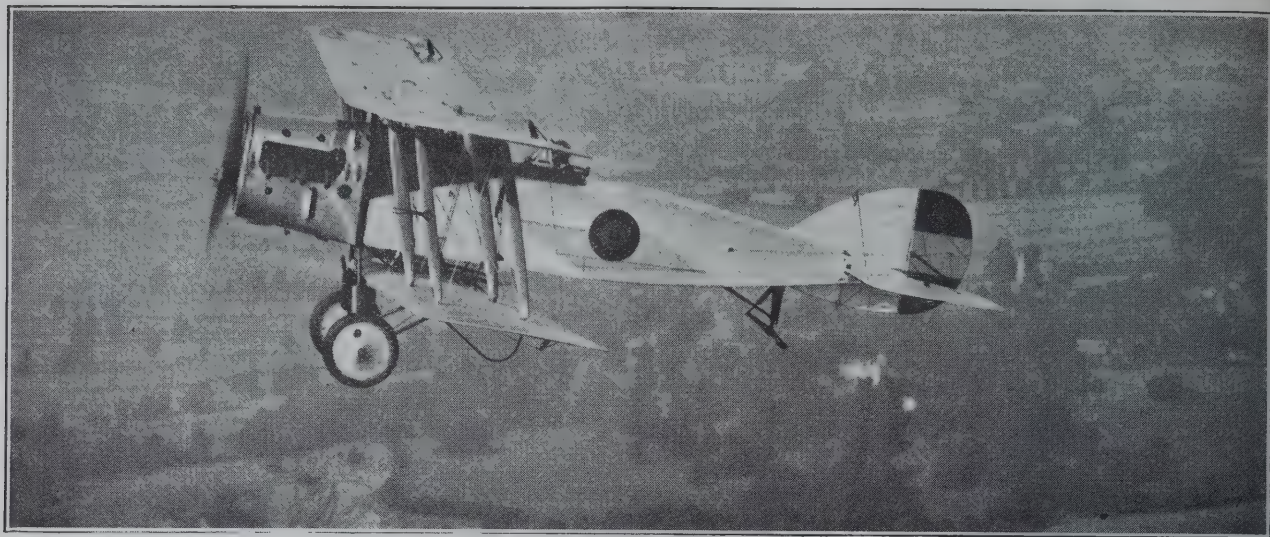


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OUT OF THE WEST.—Spain's New Air Equipment. A Bristol Fighter (Hispano-Suiza engine).

trouble, was as outstanding as his captain in a pack from which it would be invidious to single out any other individual member.

The R.A.F. three-quarter backs never quite impressed as a line in attack, and their passing was not so good even as that of the Sandhurst three-quarter backs. Individually the wing men especially were strong and determined runners, and frequently threatened danger to Sandhurst, while they and Armour all tackled finely. But Bandon, at stand-off half-back, was the best of the Cranwell backs. He is a most elusive runner. At present he is too exclusively an individualist, with a splendid cut-through, which he is inclined at times to overdo, and he has still to learn the art of giving and timing his passes, but he is a most dangerous proposition for his opponents, and never more so than within 20 yards of their line, while he also tackles magnificently, and is the fastest man on his side. His partner, P. H. Jackson, has a nice, clean pass-out from the scrum. Both full-backs were good without being exceptionally brilliant. Gillmore's recoveries from awkward situations into which his obvious difficulty in judging the bounce of the ball several times led him, were very praiseworthy.

The Cranwell team:—A. D. Gillmore (King's, Ely), back; C. H. B. Brembridge (Haileybury), G. B. Beardsworth (Christ's Hospital), J. C. Armour (Malvern), and B. W. Knox (St. Columba's), three-quarter backs; Lord Bandon (Wellington), and P. H. Jackson (Cheltenham), half-backs; G. R. Beamish (Coleraine), J. G. Franks (Cheltenham), H. L. Patch (Stonyhurst), G. E. G. Lywood (Brighton), J. R. Adams (St. Paul's), D. W. R. Ryley (Bedford), J. R. Jones (Rossall), and W. H. Merton (Eastbourne), forwards.

The Scottish Re-Union.

The Second Annual Dinner of the Royal Air Force (Scottish) Re-union Club was held in The Grand Hotel, Glasgow, on Nov. 14. There was a large gathering of members and guests, and the affair was most enjoyable. Entertainment was very kindly provided by a host of "stars" from the local theatres, including Mr. Harry Tate. Old Squadron Songs were resurrected from the past and were executed with much noise by the entire company. A collection on behalf of Lord Haig's Fund taken during the evening amounted to £15 5s.

Mr. A. Bell occupied the Chair with conspicuous success, and among those present was Mr. Reid Miller, who so very nearly put "paid" to the account of Mr. Wheatley in the recent Election. Mr. Miller lost a leg while a pilot in the R.A.F.—J. T.

Danish Air Traffic Conference.

On Dec. 1, at the invitation of the Danish Government, an International Air Traffic conference opened at Copenhagen.

Thirty-five delegates, representing Great Britain, France, Norway, Sweden, Finland, Estonia, Germany, Czechoslovakia, Holland and Denmark, are attending. The British delegates, Lieut.-Col. Edwards, Deputy-Director of Air Transport, and Mr. John Hills, a Director of Imperial Airways, Ltd., arrived at Copenhagen by air on Nov. 29.

The conference was opened by M. Friis Skotte, Minister of Public Works, who said that the Danish Government were anxious that air-routes should be extended to Denmark and particularly that the Copenhagen-Hamburg-Rotterdam service

should be extended to London and Paris. M. Skotte also expressed a desire that a Copenhagen-Berlin-Prague, and a Copenhagen-Gothenburg-Christiania service should be established.

Commander Hunsaker on Seaplane Design.

On Friday, Dec. 12, Commander J. C. Hunsaker (C.C.), U.S.N., will read a paper before the Institution of Aeronautical Engineers, entitled Notes on Seaplane Design. This meeting is to be held at the Kingsway Lecture Hall, W.C.2, at 6.30 p.m.

Commander Hunsaker, whose very extended experience of seaplane design in America is coupled with an intimate knowledge of European practice in aircraft construction, will outline the history of seaplanes in the United States and discuss the problems of the seaplane in the light of this extensive knowledge.

The lecture cannot fail to be both interesting and important and should be attended by all those who can possibly be present.

An Aerial Spy.

It has been reported that Capt. Braloi, a Reserve officer of the Rumanian Flying Corps, who is suspected of having had relations with the Russian (Soviet) Government, has stolen an Army aeroplane from Galatz and has flown to Odessa, en route for Moscow with important Army documents stolen from the military authorities at Galatz, where he was temporarily employed.

An Airscrew Specialist.

Following the voluntary liquidation of Ogilvie and Partners, Ltd., Doctor H. C. Watts, who is chiefly famous as a designer of airscrews, is continuing his side of that business as a consultant in aerodynamic matters generally and in particular on all matters connected with the design and operation of marine and air screws. Henceforth his business address will be 3, Grosvenor Gardens, S.W.1, and his telephone number Streatheam 4636.

New Technical Literature.

The Journal of the Royal Aeronautical Society No. 167. November, 1924.—Contents: Commonsense in Aeronautics, by Lt.-Col. H. T. Tizard, A.F.C.; French Aeronautical Societies, by Lt.-Col. Lockwood Marsh; The Case for the Revival of the Water Channel, by N. S. Norway. Price, to non-members, 2s. 6d.

The Institution of Aeronautical Engineers, Minutes of Proceedings, No. 11.—Contents: Aeroplane Performance Estimates. By R. Chadwick.

Air Publication 1082.—Handbook on the 325 h.p. Jaguar III Aero Engine. Published by H.M. Stationery Office. Price 2s. net.

Good Work.

It is surprising how the rural population of England takes to flying when it has the chance. Mr. J. D. Parkinson, of the Berkshire Aviation Tours, has been at Ramsay, Huntingdonshire, lately, and on Sunday, Nov. 23, took up 130 passengers from that district, a surprisingly large number considering that the visibility was about 300 yards.

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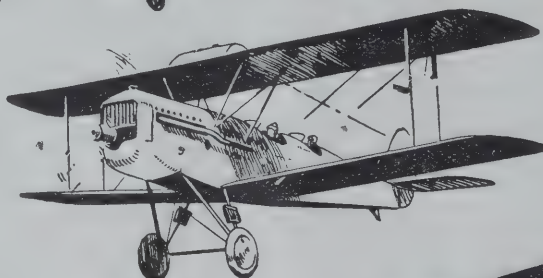
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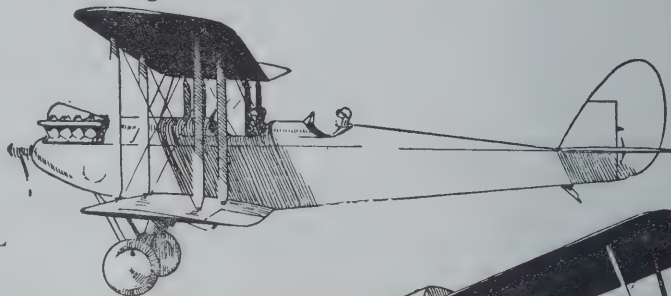
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THE PARIS SALON.

On Dec. 5, the 9th Salon d'Aeronautique opens at the Grand Palais in Paris and remains open until Dec. 21. The Paris Show has come to be recognised as the most important aero-exhibition in the world, particularly from the point of view of the internationality of its visitors, but unfortunately this year, as in previous years, the internationality of the exhibitors is not very complete. Apart from the French Aeronautical industry, the only foreign firms are Armstrong-Whitworth, Bristol and Aircraft Disposal Co. representing Great Britain, Fokker, Koolhoven and Pander representing Holland, and one stand has been taken by the Italian Air Ministry devoted generally to Italian aviation. At one time it was understood that the Society of British Aircraft Constructors were taking a large stand in order to make a representative exhibit of British aircraft, aero-engines and accessories, but owing to certain difficulties for which no one in this country can be blamed the project was dropped. In spite of this three British firms have taken space in order to uphold the prestige of the British Industry. The Armstrong-Whitworth Co. are exhibiting a Siskin V all-steel single-seater fighter fitted with the 385-425 h.p. Jaguar engine under the name of Sir W. G. Armstrong-Whitworth Aircraft Ltd., and a Jaguar and a Lynx engine under the name of Armstrong-Siddeley Motors Ltd. The Siskin V is an all-steel version of the Siskin II, and is one of a type which has been built in quantity for the Roumanian Government. There is no doubt that with the growing utilisation of metal construction, particularly of mixed duralumin and steel, but principally duralumin in France, the all-steel construction of the Siskin will arouse much interest, and the fact that a wire-braced aeroplane such as the French, who are almost completely converted to the thick wing, may regard as archaic, can put up a performance equal to the best French single-seater fighters in service, will no doubt attract considerable attention towards the Siskin V and the Jaguar engine.

The Aircraft Disposal Co., Ltd., are showing only engines

and accessories in the Salon, but it is believed that they will have at least one machine which possibly will be the A.D.C. Martinsyde fitted with the Jaguar engine, actually flying at Le Bourget during the period of the exhibition.

The engines they will be showing will be the Siddeley Puma, the Wolseley Viper and the B.R.2, all of which are of entirely British manufacture. The fact that these engines are all at least six years old in design does not detract from their interest in the least. The Siddeley Puma alone has since the War 1914-18 achieved fame as being one of the most reliable commercial aero-engines in the world. The fact that it is used in Great Britain, Australia, Holland, Germany, Spain, Belgium, Sweden, Denmark, etc., and that it is still being installed in new commercial aircraft, both in England and abroad, testifies the high opinion that is held of it all over the world. Although the Wolseley Viper has not had the opportunities of proving its worth that the Puma has experienced, those engines that have been supplied by the A.D.C. for use abroad, particularly in the Argentine, has given every satisfaction. The B.R.2 as the engine of the Snipe, still the most largely used single-seat fighter in the Royal Air Force, has proved itself to be among the best of the world's rotary engines.

The A.D.C. is also showing a comprehensive display of aircraft instruments, accessories, engine spares, etc., all of which are by the world's best manufacturers.

All goods supplied by the A.D.C., from complete aeroplanes to the smallest accessories, are thoroughly overhauled and adjusted before delivery and the firm's exhibit should enhance their already enviable reputation for the quality of the goods which they supply.

The Bristol Co. are showing a complete Jupiter engine—and examples of the French-built Jupiter are shown by the French licensees, the Gnôme Rhône Co., and in various aeroplanes. Besides these there are a Bristol Lucifer engine of 100 h.p. and a Cherub of 1,095 c.c., and a Bristol gas starter.

THE GREAT HELIUM HOAX.

With the appearance in America of Z.R.III further efforts are being made to interest the public of the United States in the alleged practical monopoly of helium held by that country, to suggest that the future of airships depends on the fireproof qualities of helium, and that America consequently is alone in a position to exploit airships successfully. It may incidentally be mentioned that there is in existence an agitation in favour of the national acquisition of the gas wells which are the main sources of helium supply, and for legislation prohibiting the export of helium from the country, and that it may not be impossible that the agitation has its origin amongst those who have gas wells for sale.

The general position in the matter of helium was stated in a note in THE AEROPLANE of Mar. 5 of this year, when it was pointed out that the cost of helium was impossibly high for any but ships of war, that the degree of fireproofness conferred by helium was relatively small so long as petrol was used as a fuel, that the use of helium rendered it impossible to use the petroleum-hydrogen engine developed in this country, and so to do away with petrol, and that in any case the helium supplies of Canada were by no means negligible compared to those of the United States.

The latest information which has been discovered in the American press is not of a nature to cause any modification of the opinions above quoted. In fact it goes far to confirm the practical impossibility of any use of helium for other than experimental and propaganda work.

The cost of helium produced at the Fort Worth helium plant in Texas at the end of the war was from 6 to 8 cents per cubic foot. The output of the plant at maximum is 8,500,000 cub. ft. per annum. It is estimated that if all the natural gas at present used in the country had its helium extracted, 50,000,000 cub. ft. per annum would be available. It is also believed that the cost of extraction could be reduced to from 3 to 4 cents per cubic foot—which is from £6 to £8 per 1,000 cub. ft.

Hydrogen can be produced in this country at 5s. to 6s. per 1,000 cubic feet—or taking the lower figure for helium and the higher figure for hydrogen it is hoped that it will be possible to produce helium at 20 times the cost of hydrogen.

On this basis it would cost £12,000 to inflate a 2,000,000-cub. ft. ship with helium, instead of £600 with hydrogen. Unfortunately one cannot inflate a ship once and for all. If one assumes that exhaust water recovery is used to avoid valving gas to compensate for the fuel consumed, and even makes the very large assumption that gas is never valved for manœuvring purposes, the fact remains that no perfectly gas-tight fabric exists, and that none is ever likely to be practicable in an airship.

With hydrogen the loss through the fabric averages 1 per cent. per day. With helium this loss is halved. As gas leaks out, air leaks in, and the gas loses lift until finally the ship has to be reinflated. With helium the impure gas is purified and used again—at some considerable expense—but without serious loss of helium. But the helium that has actually leaked away has to be replaced. A loss of $\frac{1}{2}$ per cent. per day is equivalent to 1.82 complete inflations per annum, and it is quite safe to say that in practice it would be impossible to run a ship so that not more than the equivalent of two complete inflations per annum were necessary. Two inflations of the 2,000,000 cub. ft. ship would cost £24,000.

The total supply of helium from Fort Worth therefore is sufficient at the most to keep two 2,000,000-cub. ft. ships in commission, and even if the supply is increased to 50,000,000 cub. ft. per annum, it will not suffice to keep a fleet of more than ten Los Angeles (2,400,000 cub. ft.) or five ships of the size of the new British rigid.

It is estimated that all the gas wells in the United States produce about 500,000,000 cub. ft. of helium per annum. This includes many wells in which the helium content is so small a percentage of the total that its recovery is impracticable, except at an even more colossal cost than that of the present supplies. If cost could be entirely neglected and the whole quantity used in airships, 100 small or 50 large ships is the limit of the helium-filled fleet that America could possibly maintain for any long period. Cost, unfortunately, is by no means a negligible factor, and as, by the use of hydrogen—paraffin or heavy-oil fuel, and a system of gas armouring as suggested by Commander Boothby, the fire risks of an airship can be rendered practically negligible at a cost far lower than the cost of using helium, there seems no reason why anyone should worry about America's large holding in helium.

THE R.38 MEMORIAL PRIZE.

The Council of the Royal Aeronautical Society have decided that no paper submitted in 1924 for the R.38 Memorial Prize is of sufficient merit to justify an award.

In the circumstances, the Council have decided to award the prize for 1924 to Messrs. C. P. Burgess, J. C. Hunsaker, and S. Truscott, for their paper on "The Strength of Rigid Airships," which was submitted in 1923, and received special mention in that year.

Intending competitors for the prize in 1925 are reminded that they should send in their names to the Secretary of the Society at 7, Albemarle Street, London, W.1, on or before Dec. 31 next, together with such information as to the scope of their paper as will allow the Society to make arrangements for their examination. The closing date for the receipt of papers will be Mar. 31st, 1925.

ON OVAL CYLINDERS.

During the past year or two certain journals—particularly those of the class which are produced for the consumption of motor-cyclists—have been somewhat perturbed concerning petrol engines with oval cylinders. And by this they do not mean that very well-known type of cylinder which is meant to be, but either never has been or has ceased to be circular, but cylinders made oval of malice aforethought.

One of the more experimentally-minded of the motor-cycling fraternity is said to have actually built an engine with oval cylinders and pistons and to have run that engine successfully on the road, and it is a matter of common knowledge that one engine designer, by no means unknown in aeronautical circles, has taken up the oval cylinder idea seriously and that an experimental engine so fitted is even now being designed and constructed with a view to aeronautical uses.

It may therefore be well to inquire into the claims made on behalf of the oval cylinder and to consider if it really has advantages over the circular cylinder which are likely to justify its use. So far as one is able to gather it is supposed to be particularly advantageous in the case of the radial air-cooled type of engine.

COOLING SURFACE AND VOLUME.

Of all closed figures a circle has the smallest ratio of circumference to area, and therefore for a given stroke and piston displacement a circular cylinder has the minimum possible wall area, or cooling surface. Therefore with an oval cylinder it is possible to increase the amount of cooling surface available for a given cylinder volume.

Provided that the line of airflow past the oval cylinder is parallel to the major axis of the oval the air resistance of an oval is considerably less than that of a circular cylinder of equal volume. With a major axis twice the minor axis the resistance of the oval cylinder is considerably less than that of a circular cylinder of a diameter equal to the minor axis of the oval—or in other words, one can get considerably over twice the volume in the oval cylinder for something like one half the head resistance—provided that the cylinders are in an unobstructed air stream.

Considering the matter from a more practical point of view if one assumes that owing to obstructions behind the engine in an aeroplane the engine resistance is practically directly proportional to the area of a flat disc of the same diameter as the engine, one can by using oval cylinders get into a given disc area and round a given crankcase a larger number of oval cylinders of a given capacity than one can of the normal circular type.

Therefore one should be able to get more power for the same air resistance—a very important advantage if it can be realised in practice.

PISTON BEARING SURFACE.

Moreover, with the major axis of the cylinder parallel to the crank pin, the side thrust on the piston due to the angularity of the connecting-rod is distributed over a larger bearing surface on the cylinder wall, and therefore cylinder lubrication should present fewer difficulties, and cylinder and piston ring wear should be reduced.

A point possibly not unworthy of note is that an oval cylinder head gives greater facilities for fitting two ample-sized valves than does the circular head.

There remains the question as to whether the advantages claimed for the oval cylinder can be realised in practice. Naturally the first question that will be raised is, can the oval cylinder be made at a permissible cost? So far as the cylinder itself is concerned the answer is undoubtedly in the affirmative. A cylinder whose section consists of two semi-circles joined by straight lines would be quite a simple manufacturing proposition and so would be a piston to fit such a cylinder. This form would have the further advantage that it could be easily gauged for main dimensions and inaccuracies of form would be easily detected.

SOME DIFFICULTIES WITH PISTON RINGS.

It would however have serious disadvantages. A circular cylinder of uniform material subject to internal fluid pressure expands, but remains cylindrical. An oval cylinder under the same conditions tends to expand into a circular cylinder, because those parts of the wall which have the least curvature are the least stiff. And the flat-sided part of the suggested form of cylinder would cease to be flat both as a result of internal gas pressures and as a consequence of side thrust from the piston. The same thing is true of an oval piston ring which cannot be as stiff over the less curved portion as it is at the more curved portion.

Piston rings in such a flat-sided cylinder could obviously not bear anything like uniformly over the flat face—in fact the load on them from piston thrust would inevitably be concentrated towards the ends of the flat and on the circular arc.

To a less degree this is true of an elliptical cylinder—in fact the loading on the rings will be governed by the radius

of curvature of the walls, being greatest where the radius is least, and the more elliptical one makes the cylinder—that is the flatter the sides—the more the load on them from piston thrust will be concentrated towards the ends of the cylinder. Thus the attempt to increase the bearing surface by flattening the cylinder walls becomes less and less effective the further one departs from circularity. It seems reasonable therefore to expect fairly rapid local wear of both cylinders and rings which will lead to local heating, loss of gas-tightness and difficulties with cylinder-wall lubrication, and that as a consequence no very great departure from circularity in cylinders will be found to be practicable.

On this ground it seems that the oval cylinder, if it is to be practicable, will be of elliptical section. Such cylinders could undoubtedly be machined and at the market prices now ruling for aero-engines the cost of such machining would not be prohibitive if any great advantage was to be gained thereby. Gauging and inspection might present difficulties in this form of cylinder.

THE WEIGHT OF RECIPROCATING PARTS.

Even if it is assumed that the purely mechanical difficulties of the oval cylinder itself can be overcome it may be doubted whether there is anything in it. The limit to the cylinder volume that can be arranged round a given crankshaft in present radial aero-engines is determined mainly by the loading on the big-end bearing. The critical loading in all practical cases is the inertia loading, which is governed by the weight of pistons and connecting rods, by the stroke and by the speed of revolution.

If oval cylinders fail to allow one to reduce the weight of the reciprocating parts corresponding to a given cylinder volume the big end bearing loading alone will prevent one increasing the number of cylinders round a given crankcase and the fact that the oval cylinder takes up less of the crankcase circumference becomes relatively unimportant.

The elliptical piston must have a greater circumference for a given area than the circular, and pistons are therefore almost certain to be heavier than circular ones. The gudgeon pins—on the major axis of the piston—will either be longer and heavier or else larger and heavier bosses must be fitted in the pistons to carry them. A piston and gudgeon pin combined form a beam and the longer this beam the heavier it must be if it is to remain equally stiff—even if the load remains constant. However light it is possible to make an oval piston and gudgeon pin, it should always be possible to make a lighter circular one.

There is no reason whatever why the connecting rod of the oval cylinder should be lighter than that of the circular one. There are quite a number of reasons why it might prove to be heavier. It is understood that those who advocate the oval cylinder propose to use twin rods for each piston. It is certain that with this arrangement the weight of rods and gudgeon pins for a cylinder of a given piston area will be greater than those required for a circular piston of equal area.

THE BIG END AND CRANK-PIN.

If this is so oval cylinders mean increased big end loads—and at once the possibility of increasing the cylinder volume driving on to one crank-pin disappears. It will perhaps be said that with oval cylinders a longer crank-pin and therefore a larger bearing surface for the big end can be provided.

But a crank-pin is also a beam carrying the big end bearing loads. If the length of this beam is increased the bending stresses in it are increased even if the load remains constant. Under load the crank-pin deflects, and as it deflects the load distribution on the big end bearing alters. If the crank-pin is too flexible the bearing touches only at its ends—or, in other words, the amount of crank-pin that is usefully employed as bearing surface depends entirely on its stiffness, and it is useless merely to lengthen a crank-pin unless it is kept sufficiently stiff. If as in this case the crank-pin is not only to be lengthened, but is also to carry a bigger total load, then it has to be increased considerably in diameter to give the required stiffness.

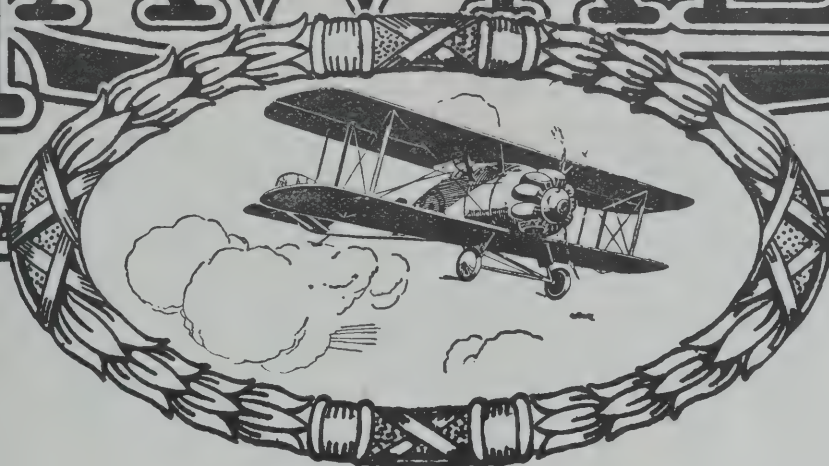
Increasing the diameter means increasing the rubbing speed on the bearing—and the higher the rubbing speed the lower the loading per square inch of bearing surface that a bearing will carry without damage.

On these grounds therefore it may be suggested that before the oval cylinder can be applied successfully to the radial air-cooled engine the big end problem which already limits the size of circular-cylindrical engines has to be dealt with.

The utmost that can reasonably be claimed for the oval cylinder is that by leaving the minor axis of the cylinder the same as that of a circular-cylindrical engine, and by lengthening the axis in the fore and aft dimension, and cutting down the stroke, one can produce in an engine of equal output, having a reduced disc area which will still be adequately cooled.

Whether in fact this will prove to be true has to be

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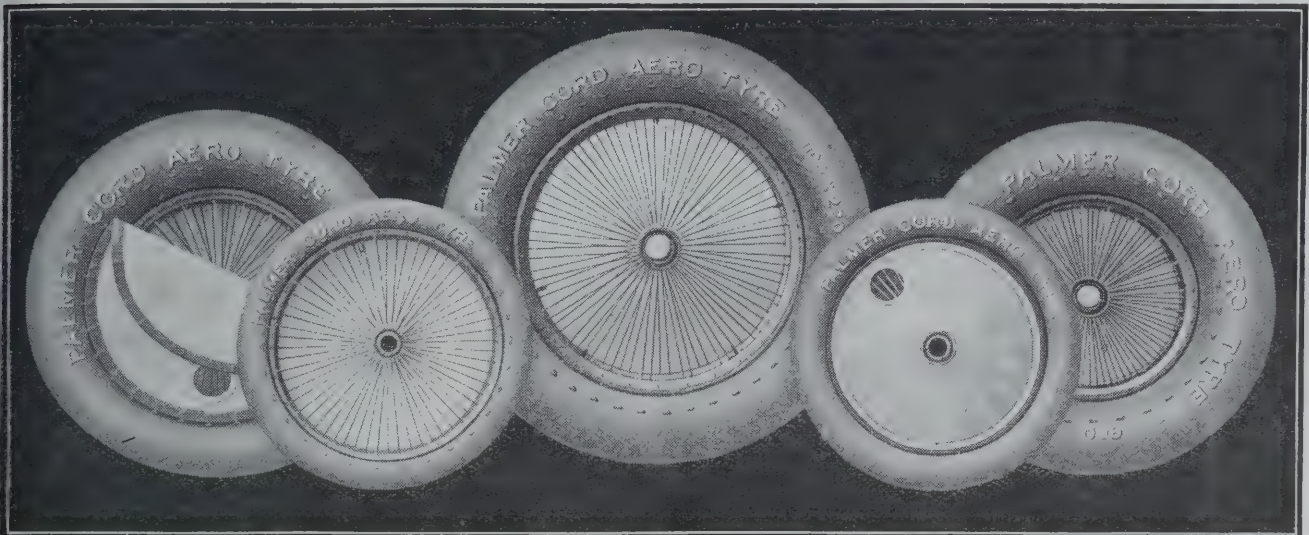


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PARIS 31, Rue la Boétie.

The Royal Aeronautical Society.

The lecture by Col. F. Searle on the Maintenance of Commercial Aircraft, which had been announced for Dec. 4, has been postponed owing to illness.

Thunderstorms and Aviation.

The paper bearing the above title, which was read by Dr. G. C. Simpson before the Royal Aeronautical Society on Nov. 27, consisted in the main of an extremely clear and interesting outline of the mechanics of the thunderstorm—together with some notes concerning the electricities thereof.

A thunderstorm is in reality an exceedingly complicated phenomenon and it cannot be said that our knowledge of what goes on in such a disturbance is complete and accurate. Dr. Simpson's paper can scarcely be abstracted or summarised without danger and those who wish for information on the subject may be recommended to acquire a copy of the original when it appears in the Journal of the Society.

Of that part of the paper which bears most directly upon aviation it may be said that the main conclusions to be drawn are that the disturbances which make a thunderstorm are of such violence that the only sound advice that can be given to the pilots of aircraft is that they should keep well clear of them. The most interesting point in this connection is the author's conclusion that the main danger to aircraft lies not so much in the risk due to lightning as that caused by the violence of the air disturbances which accompany storms of this type.

A Noteworthy Czecho-Slovak Performance.

M. Zdenko Lhota, the well-known Czecho-Slovak amateur pilot, who visited Croydon early this year, having flown from Prague on an Avia B.H.12 monoplane, has recently made a further demonstration flight of outstanding merit.

On Nov. 5 he left Prague on an Avia B.H.10, a single-seater monoplane fitted with a 60 h.p. Walter radial air-cooled engine, and on Nov. 8, he arrived at Novisad, in Yugo-Slavia, the headquarters of the Yugo-Slav Flying Service. Here, in spite of unfavourable weather, with a wind of 15 metres per sec. (20 m.p.h.) blowing, he demonstrated his machine to the Authorities, giving a very complete exhibition of stunting.

On the following day he repeated the performance and a number of Yugo-Slav military pilots flew the machine. In the afternoon of the same day he flew to Belgrade in 33 mins.

and in returning he made 53 consecutive loops over a distance of four miles at a constant height of 3,000 feet.

On Nov. 14 he returned to Prague, the total distance covered during the demonstration being some 1,000 miles.

Satisfactions.

THE BOURNEMOUTH AVIATION CO., LTD.—Satisfaction in full on Oct. 15, 1924 (a) of mortgages dated Oct. 3, 1918, Aug. 20, 1919, Sept. 14, 1920, Feb. 19, 1921, and Feb. 18, 1924, securing respectively £1,400, £1,185, £781 7s., £426 11s. 10d., and £200, and (b) of debenture dated Jan. 8, 1917, securing £3,000.

A Low-powered Four-seater.

The machine shown in the accompanying photograph was built during the present year by the Foche-Wulf Flugzeugbau A.G., of Bremen, as an economical passenger-carrier for service on lines where a low intensity of traffic may be expected.

The machine is a thick wing cantilever monoplane with a fuselage of sufficiently large section to contain a fairly roomy passenger cabin in which there are three seats. The cabin dimensions are 1 metre (3 ft. 3 in.) wide, 1.5 metre (4 ft. 11 in.) long, and 1.9 metre (6 ft. 2 in.) in maximum height. This cabin section of the fuselage is ply-wood covered, the remainder of the fuselage is of the wire-braced type and apparently fabric covered.

The undercarriage is carried on a pair of wing-section projections from the lower edge of the fuselage, very much as in the Dornier Komet.

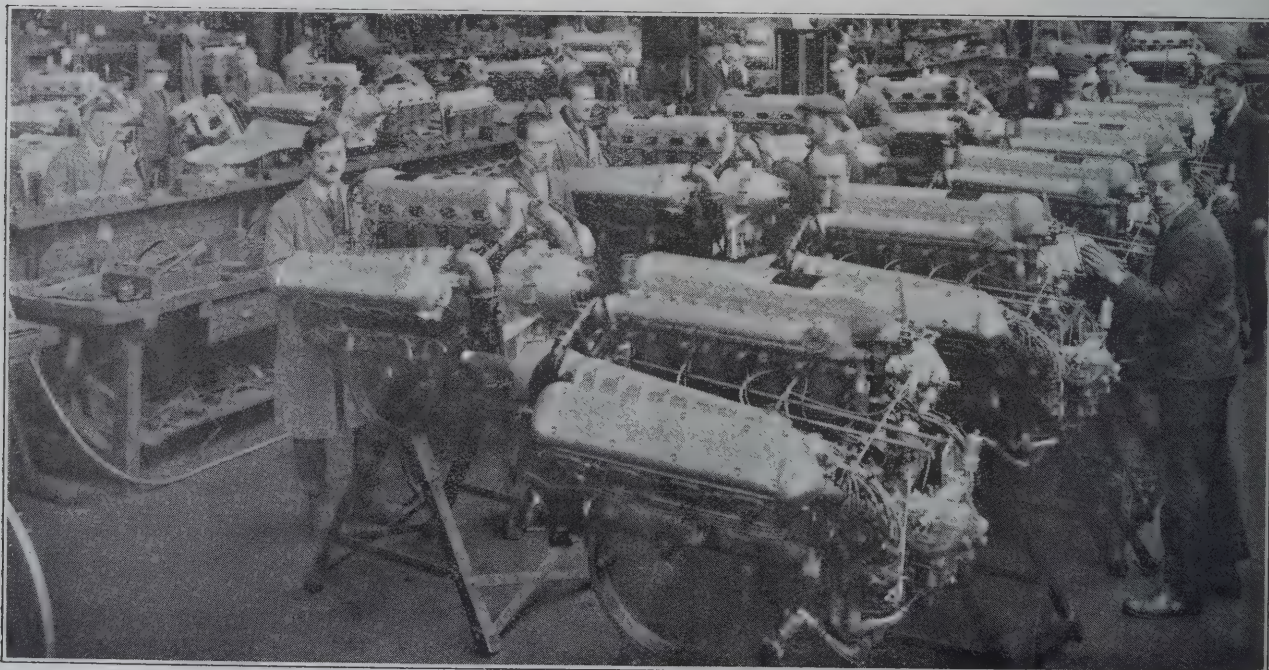
The wing, which is built in one piece, is built on two box-spars, tapers considerably in thickness, and in chord from the centre to the tips, and it has also a very noticeable "wash-out" in incidence. The ailerons are triangular in plan tapering to practically zero chord at their inner ends. The wing is attached directly to the top of the fuselage and forms the roof to the cabin.

The engine, a 75 h.p. seven-cylinder Siemens Halske radial, is isolated from the fuselage by a fireproof bulkhead. Fuel is supplied from a gravity tank fitted in the port wing.

SPECIFICATION.

Span ...	13.9 m. (45 ft. 8 in.)	Weight empty	570 kg. (1,254 lbs.)
Length ...	8.5 m. (27 ft. 11 in.)	Weight loaded	970 kg. (2,134 lbs.)
Height ...	2.3 m. (6 ft. 7 in.)	Wing loading ...	36 kg./sq. ft. (7.32 lbs./sq. ft.)
Wing area	27.0 sq. m. (291 sq. ft.)	Power loading	13 kg./h.p. (28.4 lbs./h.p.)
		Maximum speed	135 km.h. (84 m.p.h.)
		Minimum speed ...	60 km.h. (38 m.p.h.)
		Climb to 1,000 m. (3,280 ft.)	14 m.
		Fuel capacity	4 hrs. cruising

The Foche-Wulf four-seater.



QUANTITY PRODUCTION.—A batch of Napier Lion Engines in the final stages of erection at the Works of D. Napier and Sons, Acton.



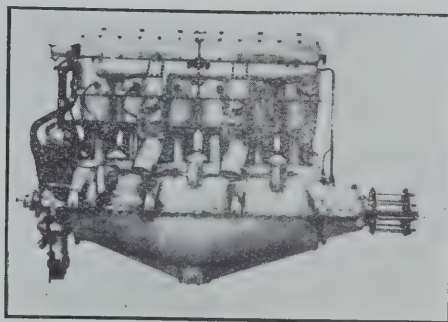
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ANOTHER "PUMA" SUCCESS.



Tests made in Belgium under the direction of Major J. Smeyers, Commandant of Military Aviation, with a D.H.9 machine fitted with 240 h.p. Siddeley "Puma" engine supplied by this Company.

Pilot : Lieut. Fabry.

Passenger : Corporal Pilot Roy de Blicquy.

First Test :

22nd August, 1924.

Took Off 9.35 a.m.

Landed at 6 p.m.

DURATION OF FLIGHT WITHOUT LANDING :

8 HOURS 25 MINS.

Second Test :

29th August, 1924.

Took Off 7.37 a.m.

Landed at 7.40 p.m.

DURATION OF FLIGHT WITHOUT LANDING :

12 HOURS 3 MINS.

These flights were made to test the petrol and oil consumption which were for No. 1 Flight, petrol 330 litres, oil 31 litres, and for No. 2 Flight, petrol 492 litres, oil 45 litres.

After each of these flights the engine was thoroughly examined and found to be in perfect order.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 8; Tuesday, 12; Wednesday, 11; Thursday, 6; Friday, 15; Saturday, 16; Sunday 7.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 36, passengers 140, freight 8 tons.

AIR UNION:

Paris—London: Machines 23, passengers 54, freight 8 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 12, passengers 16.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 4, passengers 3.

Total number of trips by British machines: 36, carrying 140 passengers. Foreign machines: 39, carrying 73 passengers.

Comparative Figures:

For week ending Nov. 30:

Machines, 75; Passengers, 213; Crews, 98; Total personnel, 311.

Corresponding week, 1923:

Machines, 15; Passengers, 24; Crews, 23; Total personnel, 47.

Corresponding week, 1922:

Machines, 49; Passengers, 120; Crews, 94; Total personnel, 214.

Corresponding week, 1921:

Machines, 19; Passengers, 13; Crews, 30; Total personnel, 43.

Corresponding week, 1920:

Machines, 39; Passengers, 58; Crews, 45; Total personnel, 103.

Croydon Notes.

The weather was much better last week than in the two preceding weeks and there were no blank days at all.

On Saturday there were two special machines ordered for Copenhagen so Mr. Barnard went there with four passengers in a D.H.34 and Mr. Youell with three passengers in a D.H.50. Also a special Fokker, piloted by M. Smirnoff, went to Paris.

Among the passengers which arrived during the week on a K.L.M. Fokker were some baby alligators. They were sent in a special tank, the temperature of which had to be kept at 70° Fahr., otherwise the little pets might have got croup. Mr. Leverton reports that they were all singing happily in harmony on arrival. Mr. Leverton added that he saw no harm in it.

A strict watch was kept on the aerodrome during the week-end, in case any of the actors in the "Mr. A." case might decide to leave in a hurry. In connection with this case a riddle was in circulation at the aerodrome which personally one was quite unable to see. The riddle was "What did Mr. Hobbs say when he went to the bank?" The answer is, "Will you cash me a cheque?" It seems a very natural remark to make. However,—

Mr. Muir took a D.H.9 which has been reconditioned by the Surrey Flying Services, to the Beardmore aerodrome at Renfrew on Saturday.—G. D.

Colonel Searle to Fly.

Colonel Frank Searle, Managing Director of Imperial Airways, Ltd., is learning to fly at the training school of the De Havilland Aircraft Co., Ltd. He has already had one lesson and it is said that he shows more than the average amount of aptitude.

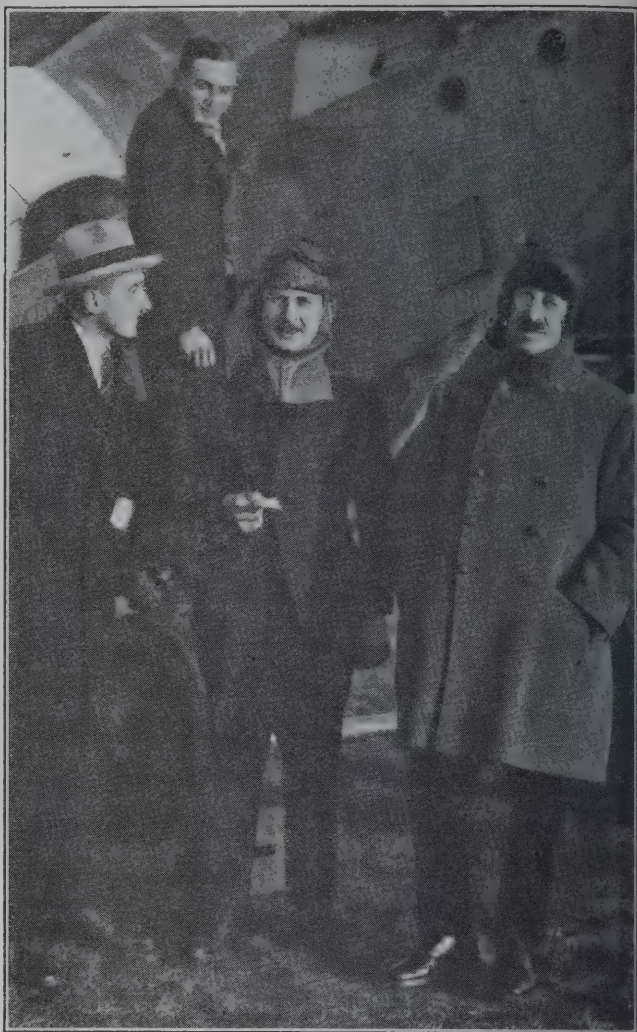
It is understood that he is taking this course in order that he may become acquainted better with the duties and difficulties of the pilots who serve in the company of which he is the Managing Director.

At the moment Col. Searle is off duty owing to a strained muscle which was damaged by suddenly applying the brakes of his car to avoid running over a dog. Which shows that things other than flying may be dangerous.

Sir Sefton Brancker's Tour.

Sir Sefton Brancker on Sunday arrived at Bucarest by train from Warsaw. Mr. Cobham and the D.H.50 are at present delayed by fog, but will proceed to Bucarest as soon as the weather clears.

Sir Sefton dined with the Crown Prince on Sunday night and on Monday he discussed with the Roumanian authorities the possibilities of an international air route through Roumania.



DER DRANG NACH OSTEN.—Like so many other British Leaders Sir Sefton Brancker first won fame in India, where he was the first British officer to fly (with M. Henry Juller). He is here seen with Mr. Alan Cobham and the D.H.50 (Puma engine) at the Deutscher Aero Lloyd Aerodrome at Staaken bei Berlin on his way to India exploring avenues for an Imperial Airway.

PERSONAL NOTICES.

DEATH.

BYRNE.—On Nov. 28, at Duxford, Cambridgeshire, as the result of a flying accident, Cyril William Anthony Byrne, Flg. Off., No. 29 (Fighter) Sqdn., R.A.F. Mr. Byrne was flying a Sopwith Snipe.

FORTHCOMING MARRIAGES.

HOPE-POTTER—PATTINSON.—The engagement is announced between Flg. Off. S. L. Hope-Potter, son of the late Dr. John Hope-Potter, of Porlock, Somerset, and nephew of Archdeacon Beresford Potter of Rake Manor, Melford, Surrey, and Dorothy, the daughter of Mr. Pattinson, J.P., and Mrs. Pattinson, Westholme, Sleaford.

WHELAN—WREY.—The engagement is announced between Robert Darley Whelan, Flg. Off., R.A.F., eldest son of the Rev. P. S. and Mrs. Whelan, of Brenchley, Kent, and Barbara Marion Celia Wrey, younger daughter of Sir Bouchier and Lady Wrey, of Tawdsen, Brenchley.

MARRIAGES.

FIDDAMENT—WARD.—On Nov. 25, Flt. Lt. A. I. Fiddament, D.F.C., No. 100 (Bombing) Sqdn., R.A.F., to Doris Martha, daughter of Mrs. Ward, Lincoln, and the late Mr. J. W. Ward, Witticall House, Louth.

WRIGHT—HARRISON.—On Nov. 26, at St. Peter's, Cranley Gardens, Flt. Lt. Frank Wright, R.A.F., eldest son of Mr. and Mrs. Wright, of Royston, Herts, to Mary Faith, daughter of Mr. and Mrs. W. H. Harrison, of 8, Glebe Place, Chelsea.

BIRTH.

RODWELL.—At the Palestine General Hospital, Iudd, on Nov. 21, to Margery, wife of Flt. Lt. R. J. Rodwell, No. 14 Sqdn., R.A.F., Ramleh, Palestine—a daughter.

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Vol. XXVII. No. 24. SIXPENCE WEEKLY.

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"SOMETIMES WHEN I AM FAR AWAY
"WON'T YOU REMEMBER ME AND SAY—'I MISS YOU.'"



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OUT OF GERMANY: Sir Sefton Brancker piloted by Mr. Alin J. Cobham in a D.H.50 (Siddley Puma—Aircraft Disposal Company) leaving the Deutscher Aero Lloyd aerodrome at Staaken for Warsaw on his way to India. Sir Sefton is engaged on a tour of the air route to India and holds a watching brief for both airships and aeroplanes. The expense of the tour is being borne by all members of the S.B.A.C., Imperial Airways, Ltd., The Anglo-Persian Oil Co., Ltd., Sir Charles Wakefield, the Air Ministry and others.

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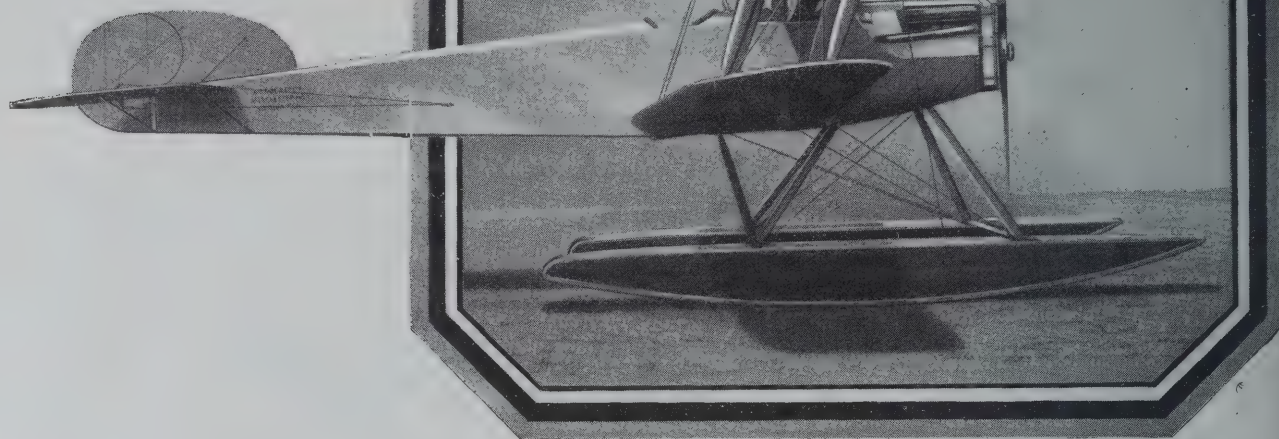
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ON THE PARIS AERO SHOW.

Of the Paris Aero Show of 1924 one can at least say that it is worth while. There is nothing startling in it, nothing to make technical or flying visitors excited: nothing which would make a pilot long to fly it nor make a designer wish that he had thought of it first. But it is a good show of respectable aeroplanes which do fly, whereas those in the show of 1922 were mostly of the kind which hoped they might fly.

The three best machines in the show from the point of view of progress are the Koolhoven, the S.I.M.B. and the Hubert (to put them in their alphabetical order so that nobody will feel jealous). And all three of them existed in 1922. Evidently progress has not been galloping at war speed during the past two years. Nevertheless there has been good steady progress. Take those three machines as examples:—The Koolhoven has developed from a well-designed wooden structure with steel and duralumin reinforcements into a beautiful combination of steel, duralumin and wood, each material used exactly as it should be in the places where it is most desirable.

The S.I.M.B. (Société Industrielle des Métaux et du Bois), otherwise the Ferbois, otherwise the Bernard, designed by Hubert, has become a real flying machine which has put the French speed record to 244 miles an hour from the airport's 236 m.p.h. and the Ferbois people propose to lift it record another ten or fifteen miles an hour by fitting wing struts instead of those on the struts. Two years ago it was a queer speedy-looking beast with an impressive but impossible one-legged undercarriage and the old impossible sensitive metal-covered wings are now made of ply-wood. In fact the machine is very much more *bois* than *fer* as the result of progress.

The Armstrong-Siddeley Siskin V, which incidentally is the only British-built machine in the show, has been built in Roumania and is practically the Siskin II (Mr. Frank Courtney's King's Cup machine of 1923—which had a second seat put in for the 1922 race and was really a single-seater). It has less surface than the R.A.F.'s Siskin III, carries a slightly smaller load, and has a much better performance. The machine being shown in skeleton form demonstrates the progress of constructional detail and improved finish. Whether it is a credit to British workmanship.

The only pity is that there are not some more of our best machines in the show. It seems strange that where three Dutch firms can exhibit there should be only one English aeroplane, even though that may be a worthy representative of the British Workman at his best.

One might have included the Bréguet bomber (the Type XIX, as flown by M. Peltier Doisy till he crashed at Hanoi in French Indo-China) among the best machines purely on its performance and on the beauty of its workmanship but for the fact that its ingeniously sprung wheels seem to have an unpleasant habit of omitting to perform their allotted function and of locking at inopportune moments when landing—with resultant writing-off of the machine. Also the duralumin structure is so beautiful and so elaborate that one hardly believes that it could ever become a production job at a reasonable price unless produced in thousands.

On sheer performance the big Farman passenger monoplane which is afflicted with the fearsome name of the "Jabiru" might be entitled to a place in the leading group. But the one which put up the performance which won the competition for commercial aeroplanes had four engines (two 180 h.p. engines in tandem under each wing) which is not a progressive idea. And the one shown, which has one much bigger engine (a 400 h.p.) under each wing, has a much lower performance with its 800 h.p. than the other has with its 720 h.p. The reason seems to be that the bigger airscrews on the bigger engines project till they overlap the nose of the fuselage and so cause an air-jam between the fuselage and their own housings which absorbs more than their additional power—and that is not progress.

Aluminitis.

Judging by the Bréguet and the S.É.C.M. (which firm does nearly all the duralumin structural work for the French Trade), and the Schneider two-tail freak (a rival and revival of the old German "Wong-wong" of early war days), and the Dewoitine and the Hanriot and others, the French Aircraft Industry still seems to be suffering from its craze for aluminium alloys and complicated jigsaw or Meccano puzzles made of such materials.

One always remembers the late Walter Staner—the man



THE PARIS SHOW FROM THE SOUTH GALLERY.—At the bottom of the picture are the skeleton Armstrong-Siddeley Siskin (right) and the original inherently stable Fokker (left).

who made *The Autocar*—saying that aluminium at best is only electrified dirt. And one has never quite recovered from the prejudice which he created. True there are aluminium alloys which are good when properly used in their right place. But dirt has been defined scientifically as "matter in the wrong place," and on that hypothesis there is an appalling amount of dirt in some French aircraft.

There is no doubt that too much importance can be attached to a phrase—or a slogan as the advertising expert of to-day calls it. By force of suggestion the objective mind working on the subjective mind, the inventor of a slogan ends by believing it himself. Consequently the firm or designer or constructor who starts out with the "all-metal" or "all-aluminium" slogan is apt to believe too much in using metal for everything. Actually the right way to design an aeroplane is to use the right material in the right place for everything and then there can be no dirt anywhere and a clean design will result.

The one-material idea is a mistake. If it is right why did not Nature make us animals entirely of bone? On the face of it one would think that an exterior of bone would be preferable to skin for taking the buffets of an unkind world. Yet we know that there is nothing like leather—in its natural state, especially if sufficiently tanned when young. How wrong an all-bone structure would be is well shown in those few instances (the word cases might be used correctly here, *pace* the late Sir Walter Raleigh) in which Nature has gone too far and has allowed bone to be developed to excess, as for example in the brains of the Navy.

But seriously, what is the charm about all-metal? One feels sure that the timber folk could put up an equally good argument for all-wood aircraft, in spite of the fact that the War 1914-18 denuded the American Continent of all the best spruce for a generation ahead. The right attitude for aircraft designers would seem to be "a place for everything and everything in its place."

One can of course understand France being enthusiastic over aluminium seeing that the biggest supply in the World of bauxite—the ore from which aluminium is most cheaply obtained—is in the South of France, right alongside an unlimited supply of water-power for the making of electricity,

the other essential in producing aluminium. We have a goodly supply of bauxite and the British Aluminium have their works right in the wilds of Scotland at Foy because the local waterfall is able to drive what is by far the biggest hydro-electric plant in Great Britain. But France is still far ahead.

Incidentally, the word Duralumin has nothing to do with the word *dur*, the French for hard, and it does not mean "hard aluminium," as is generally supposed. It is derived from the *Dürener Metalfabrik Aktien Gesellschaft* at Düren in Germany, where that particular alloy was first made a success. And the best duralumin is now, one believes, made by Vickers Ltd. in England.

Wing Curves.

On the whole, though the Paris Show demonstrates progress in aircraft construction it does not indicate much progress in the design of flying machines.

There is nothing new in wing curves. The French seem devoted to that compatriot of Riabouchinski whose name is Jowkowski, or Joukaovski or Tchaikoffski, however one likes to spell him. His wing curves are called "circles formally transformed circles," which means presumable circles which have been trodden on. But quite good as planes are built without his curves.

Mr. A. V. Roe's original method of drawing a pretty curve with chalk on a board and sticking a spar section into it will probably work as well as any other so long as design labour with mathematical accuracy on wing-curves will remain in complete ignorance of how the consequent streams are affected by fuselages and gun-rings and engine cowlings and undercarriages and bomb-racks and the Christmascow fittings on which the Air Ministry's assorted cubby-hole insist. And anyhow the whole of the calculations may be upset when Mr. Bill Gilmere's latest wing-curve arrives from the States, and is hooked up to the fuselage which really fits it.

Engines.

There is nothing much in engines or in engine mounting. Only we can take consolation from the fact that the British type of hinged and interchangeable mounting, in which the whole power-plant can be dismantled or changed for another



THE PARIS SHOW FROM THE NORTH GALLERY.—In the left bottom corner is S.I.M.B. (Ferbois) which holds the French Speed Record. To the right of it is the twin tail of the Schneider. The picture shows how the signs hung from the roof facilitate finding any particular stand.

FAIREY

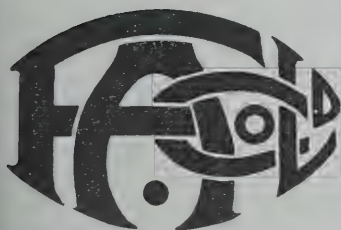
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in an hour or so, is now becoming general in France. Also our insular pride may be swelled by the fact that some of the finest performances by French aircraft of late have been done with Bristol Jupiter engines built in France by the Gnome-Rhône Co. and only altered to the extent of building them by the millimetre instead of by the inch.

In engines we seem to be still ahead of the French. The newer Lorraines and Renaults seem to be doing well, but one hears that the 450 h.p. Hispano is not yet quite *au point* for flying, though it has passed the type tests of the Section Technique, which may be a matter of carburettors.

The Gnome-Rhône Jupiter (built under license to the Bristol Co.) and known officially in France as the 420 h.p. Gnome-Rhône ("license Jupiter" in very small letters) is, as already mentioned, doing very well especially in putting up phenomenal climbs—in which its low weight tells.

But an engine which ought to be watched carefully is the new Panhard-Levassor, a 12-cylinder Vee job of about 400 h.p. with Knight sleeve-valves. If it passes its tests it will run the American engines and our best very close. Having no overhead valve gear its projected end-on area is extremely small. And obviously if sleeve-valves stand the work they are far less trouble to maintain on active service than are poppet valves. We ought to push on our experiments with the Burt single sleeve-valve engine just in case the Panhard makes good.

Gadgets.

Where the French show most progress is in their accessories, fittings, and gadgets generally. This is probably due to the fact that the French Section Technique tries to get the best of everything and is not merely out to plant its own departmental ideas on the Trade as are the minor officials at the Air Ministry. For example there are many excellent electric switches to be bought for a few pence apiece in France, whereas all switches on British aircraft have to be of an official design which costs many shillings and is built up quite unnecessarily of dozens of parts and weighs a pound or so as against a few ounces for the French type which is if anything a trifle more solid and reliable.

Here is a matter to which the higher authorities at the Air Ministry might well give their personal attention. Whenever a British designer of aircraft produces anything which is at all new, his designs are sat upon by a kind of committee of underlings, each of whom has to justify his existence by finding fault with the new designs or by sticking into the designs the particular fad, gadget, or gilguy by, for, or on which his sub-department exists. The result, as we have seen, is that our war machines, more particularly our pursuit ships, defensive fighters and general purpose machines are some tens of miles an hour slower than those of foreign nations.

That does not matter so much so long as the faster machines belong to our Allies, like France and the United States, or our future Allies, Germany and Holland. But when our future enemies the Russians and the Japanese begin acquiring the faster craft, as Russia is doing by the hundred from Holland and as Japan soon will be by copying the best models, and when high-performance machines of original design are being turned out in countries which Russia will occupy as soon as the advance on civilised Europe begins—as in Czecho-Slovakia—then it is time something was done about it.

Our Cheka.

So active has this committee of official interference become of late that it is now commonly known in the Aircraft Trade as the *Cheka*—being, as it is, a body for the suppression of revolution against official designs—much as the Air Ministry, in its early days during the War when it was situated in the Hotel Cecil, was invariably known as the *Hotel Bolo* because everybody in it was either actively interfering with aircraft production or was helping the enemy by sitting still and doing nothing.

For the benefit of young officers who were leaving their prep. schools at the time of the Armistice in 1918 one may explain that Bolo Pasha was a Frenchman formerly in the employ of the Egyptian Government, who was shot as a spy for being concerned in a "stop the war" plot in France.

Also one may explain for the benefit of young officers who only look at picture papers and occasionally read *THE AEROPLANE* that the *Cheka* is the organisation of the Soviet Government of Russia whose job it is by means of its Secret Service to discover and destroy those concerned in counter-revolutionary plots. Its emissaries frequently masquerade as a friendly trade mission and use that disguise to foment revolutions in the countries with which they are supposed to be friendly. The parallel in the case of the Air Ministry *Cheka* is quite remarkable.

That being so, if the Service members of the Air Council want to see the R.A.F. equipped with aircraft which are capable of competing with those of possible enemies and

allies they will do well to abolish the *Cheka* and give our aircraft designers a free hand, subject only to their products standing practical tests and carrying the armament required by the Operations Branch. Let the fighting men consult the designers about what aircraft they can have instead of depending on the theories of self-styled experts who have never been near a war—though for the matter of that a goodly number of them were better fitted by their age and physical state to have served in the trenches between 1914 and 1918 than they were or are fitted mentally to pose as authorities on the design and construction and equipment of aircraft. Why the youngsters who will have to fight in the next war should depend for their lives on men who avoided fighting in the last war may take some explaining when the time comes to ask questions about it.

More than enough fuss is made about giving jobs as clerks and secretaries to men who fought in the War and displacing non-fighters to make way for them. It might be well if some of the experts, whether fighters or non-fighters, were displaced to make room for men who at any rate know that an aeroplane for the R.A.F. should be of use in time of war.

A Suggestion.

On the whole although there is nothing revolutionary at the Paris Show—nothing at any rate to emotion the Air Ministry *Cheka*—there is quite a lot which is of interest to intelligent designers. And one earnestly recommends every firm in the British Aircraft Industry to send its most promising draughtsmen there for a couple of days to study details.

It would pay any firm to spend £100 on sending its five best men to the show before it closes on Dec. 21. A mere £20 a piece would cover the fare and three clear days' keep. And it would be money well spent, for not only would it increase the value of the staff by that amount of collected collective knowledge, but it would increase the keenness of the individual in that being sent would indicate that his work was appreciated by his chiefs.

In any case the show is worth seeing. As usual the decorations are superb and the uniform stands give the firms a chance of showing who has the better machine instead of merely showing, as at Olympia, who can afford to employ the most expensive shop-fitter to compose and decorate his stand for him. If ever and when we do have an Aero Show in London (one doubts personally whether it is worth while) one hopes that in spite of motor-copying precedents the S.B.A.C. will insist on uniform decorations, if only because they make it so much easier to discover individual stands.

One congratulates the Chambre Syndicale de l'Industrie Aéronautique on having organised so successful a show, and one thanks them on behalf of the staff of this paper for having, for the first time on record, permitted the issue of passes without all the delay and formality which on previous occasions has resembled that inflicted upon a non-quota undesirable alien trying to pass the immigration authorities of the United States. The Chambre Syndicale at any rate deserve success.—C. G. G.

THE AEROPLANE ALBUM.

THE AEROPLANE Album of British Aircraft is now on sale at 2s. 6d. net. It can be obtained post free for 2s. 10d. from *The Aeroplane and General Publishing Co., Ltd.*, 14, Bream's Buildings, London, E.C.4.

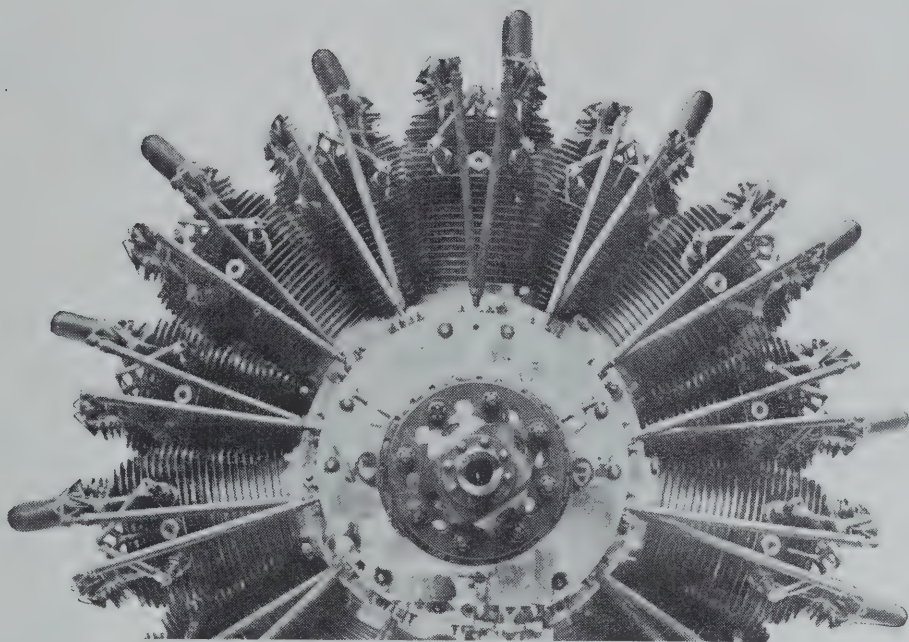
The object of the album is to present for the first time an artistic record of the products of all the chief British aircraft firms. It is printed in photogravure and the result is a very fine selection of pictures of aeroplanes, which not only show the characteristics of the craft which they depict, but also in many cases make very beautiful pictures worth cutting out and framing.

The cover is designed by Mr. Leonard Bridgman and shows a high-speed modern aeroplane with the Union Jack as a background. Here it may be noted that this represents no aeroplane in particular.

The Album consists of 64 pages and starts with an *apologia* or *raison d'être* by the Editor and contains about a hundred photographs, which include twenty magnificent full-page plates.

It has been produced with the co-operation of the British Aircraft Industry and every manufacturer of aeroplanes and engines was invited to assist. The response to this invitation was far better than was expected. As a result it has been possible to produce something which will give a real idea of what is being and has been done in this country in the way of building aircraft which are good to look at as well as to fly.

As only a limited number of these albums has been produced those requiring copies or extra copies should lose no time in making their applications.



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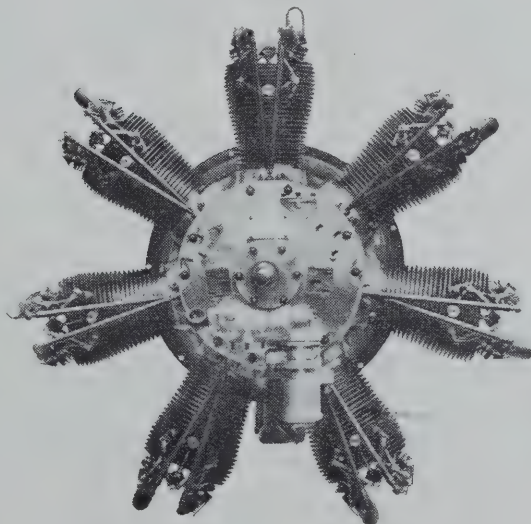
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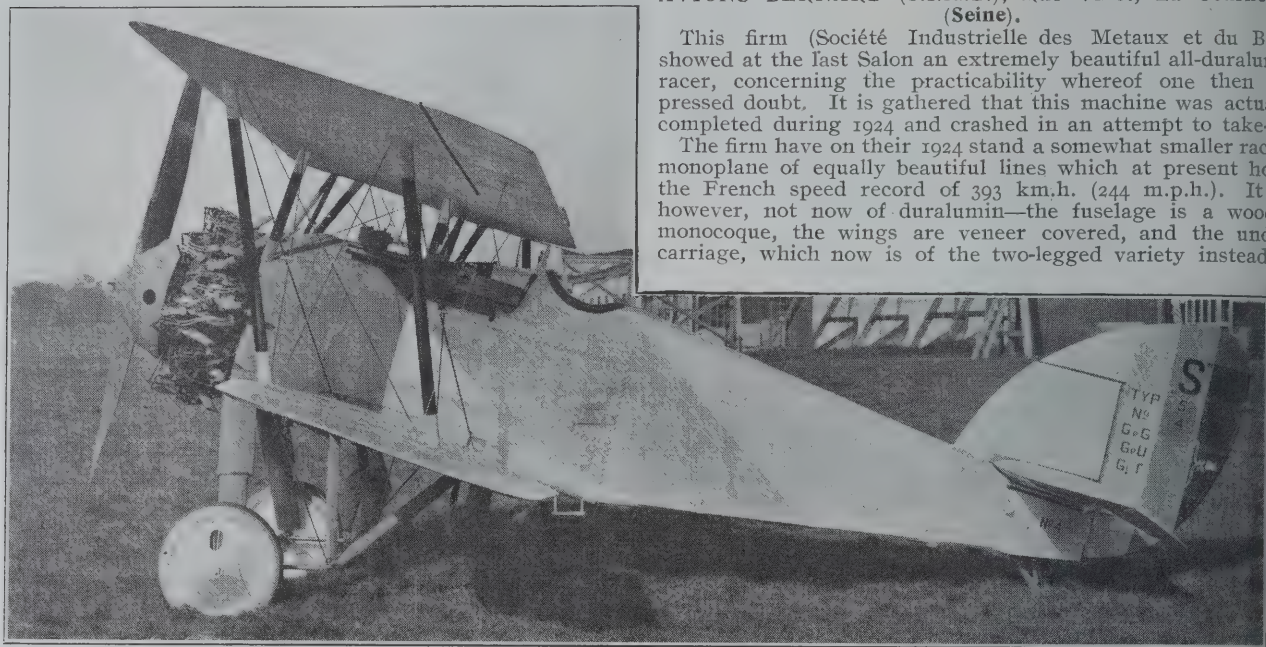
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Weight complete,
460 lbs., 209 kgs.

THE EXHIBITS.

SIR W. G. ARMSTRONG-WHITWORTH AIRCRAFT, LTD.,
Coventry.

The Armstrong-Whitworth firm exhibit a Siskin V single-seat fighter with the 385/425 h.p. Jaguar engine in skeleton. The Siskin V is a modified Siskin II, of a type which has been ordered in some quantity from Roumania, and is somewhat different in general arrangement from the Siskin III, which is now in service in the R.A.F. It has top and bottom wings of more nearly uniform chord than the III, and has separate interplane struts instead of the V type of the III.

Unfortunately perhaps the machine is not as had been



The Armstrong-Whitworth Siskin V (Armstrong-Siddeley Jaguar engine, 385-425 h.p.).

expected of the all-steel type, as the wings and control surfaces are framed in spruce. The fuselage, interplane struts and undercarriage are of steel tube, so that in some ways the machine may be regarded as a thoroughly good sample of high-class British workmanship both in steel and in timber.

At the same time, one regrets at a show where French duralumin structures are so much in evidence that there is no example of British steel wing construction.

The steel fuselage is a beautiful piece of work—not that it is in any way remarkable for the type of ingenuity common to French metal aircraft—and its simplicity and general straightforwardness is in somewhat strong contrast to some of the other exhibits.

The machine has the standard Siskin oleo-pneumatic undercarriage and the duplicated lift wiring system from the pylon carrying the undercarriage torque arms to the lower wing.

The machine is fitted with twin synchronised Vickers guns and complete military equipment.

AVIONS BECHEREAU, 85, Avenue de la Muette, Paris

On a stand below the gallery, M. Bechereau exposed the fuselage of a monoplane to which is attached by means of piano-wire bracings, a pair of wings which obviously do not belong to the body, for the body carries wing roots of large chord and much greater thickness than the wings actually applied to them. One was unable to discover on the stand anyone who was interested in it or to glean any information concerning the purpose of the exhibit, which is intrinsically uninteresting, and appears to be something in the nature of a throw back to the earliest of the old Deperdussin.

AVIONS BERNARD (S.I.M.B.), Rue Viliot, La Courneuve
(Seine).

This firm (Société Industrielle des Metaux et du Bois) showed at the last Salon an extremely beautiful all-duralumin racer, concerning the practicability whereof one then expressed doubt. It is gathered that this machine was actually completed during 1924 and crashed in an attempt to take-off.

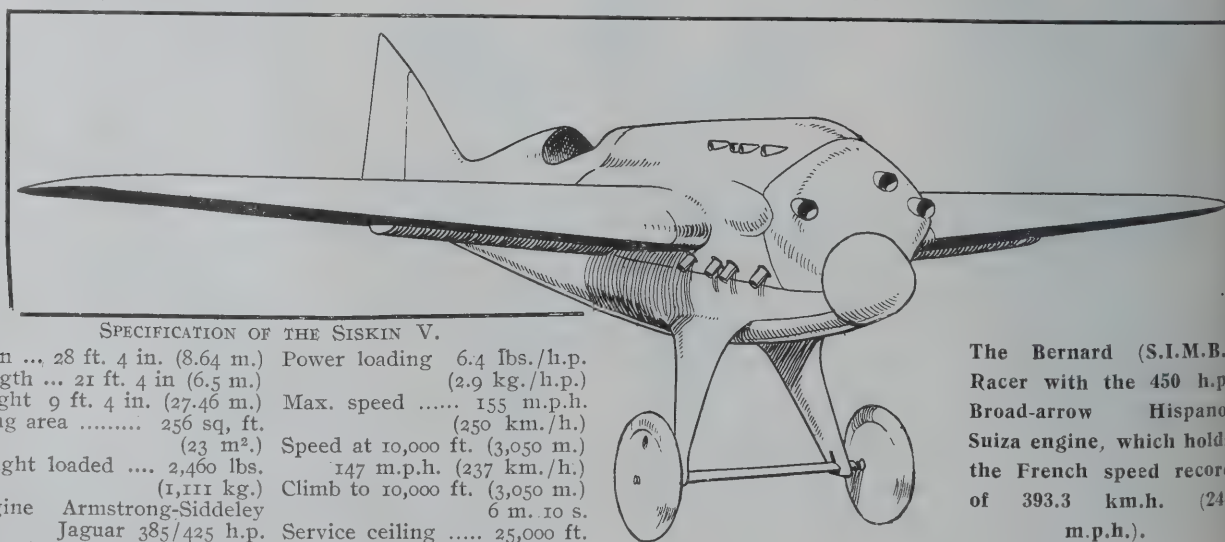
The firm have on their 1924 stand a somewhat smaller racing monoplane of equally beautiful lines which at present holds the French speed record of 393 km.h. (244 m.p.h.). It is, however, not now of duralumin—the fuselage is a wooden monocoque, the wings are veneer covered, and the undercarriage, which now is of the two-legged variety instead

the earlier inverted T cantilever type, although possibly of slightly higher resistance, appears to be structurally sound.

Like the earlier model, the machine is a cantilever monoplane with tapered wings and a very streamline fuselage. The engine is the 450 three-row Hispano. As exhibited at the Salon the machine had a series of Lamblin radiator-elements fixed to the under-surface of the wings with brass wood-screws so that it may safely be assumed that they have never been used in flight—presumably they represent an intention with an eye to further records.

SPECIFICATION.

Span ... 9.9 m. (32 ft. 6 in.)	Engine Hispano-Suiza
Length 6.7 m. (22 ft.)	450 h.p.
Height ... 2.3 m. (7 ft. 6½ in.)	Wing loading ... 101 kg./m²
Wing area 11.6 m²	(20 lbs./sq. ft.)
(129 sq. ft.)	Power loading ... 2.6 kg./h.p.
Weight loaded 1,175 kg.	(5.74 lbs./h.p.)
(2,585 lbs.)	



SPECIFICATION OF THE SISKIN V.

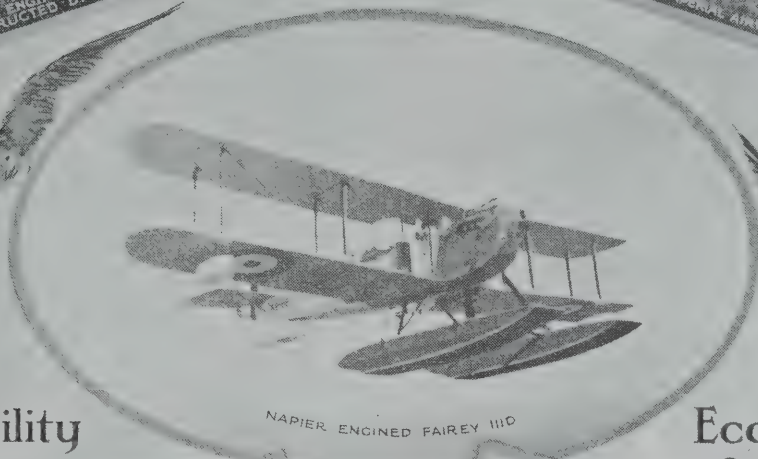
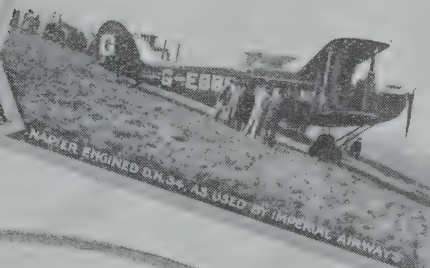
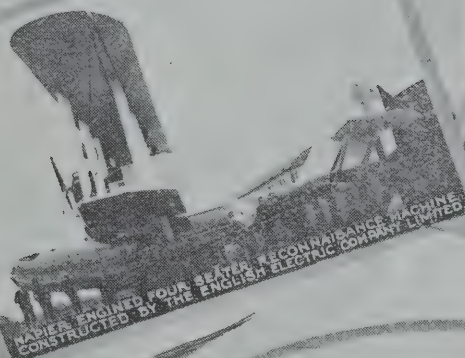
Span ... 28 ft. 4 in. (8.64 m.)	Power loading 6.4 lbs./h.p.
Length ... 21 ft. 4 in. (6.5 m.)	(2.9 kg./h.p.)
Height 9 ft. 4 in. (2.746 m.)	Max. speed 155 m.p.h.
Wing area 256 sq. ft.	(250 km./h.)
(23 m².)	Speed at 10,000 ft. (3,050 m.)
Weight loaded 2,460 lbs.	147 m.p.h. (237 km./h.)
(1,111 kg.)	Climb to 10,000 ft. (3,050 m.)
Engine Armstrong-Siddeley	6 m. 10 s.
Jaguar 385/425 h.p.	Service ceiling 25,000 ft.
Wing loading 9.6 lbs./sq. ft.	(7,600 m.)
(48 kg./m².)	

The Bernard (S.I.M.B.)
Racer with the 450 h.p.
Broad-arrow Hispano-
Suiza engine, which holds
the French speed record
of 393.3 km.h. (244
m.p.h.).

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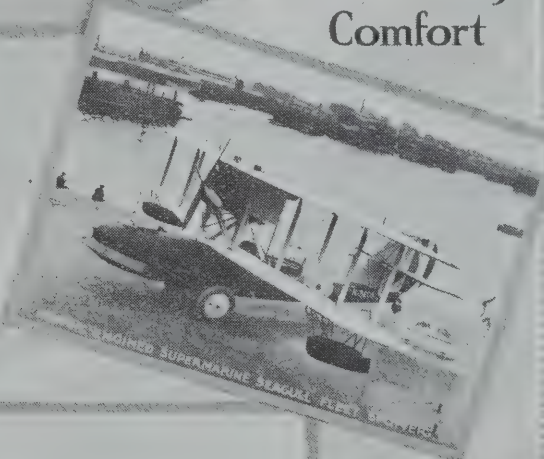
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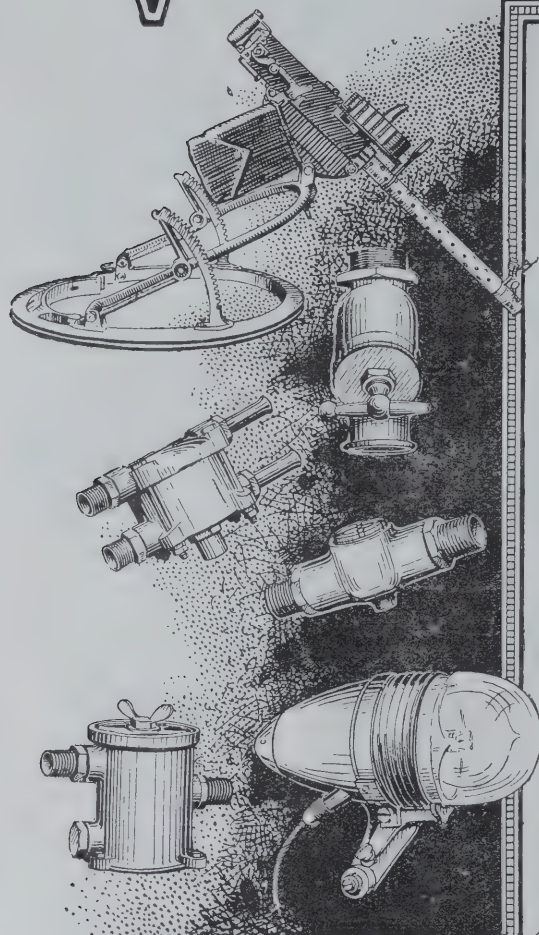
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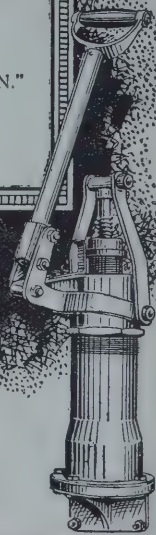
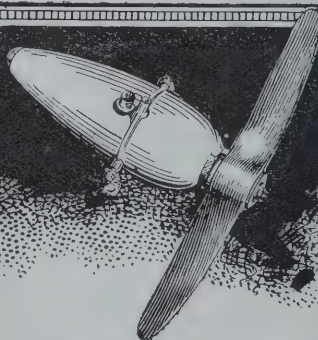
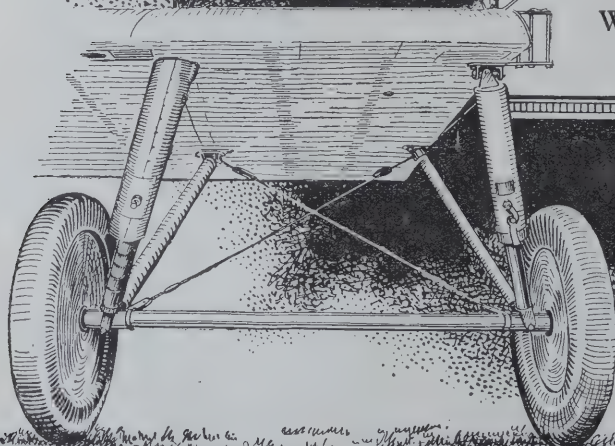
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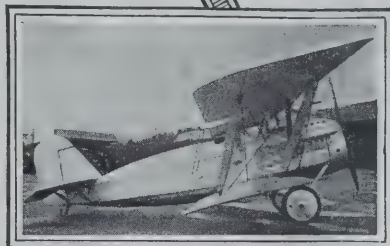
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The Type S.51 Spad, with French-built Bristol Jupiter engine.—The fastest climber in the French Service.

S.A. CONSTRUCTIONS AERONAUTIQUE BLANCHARD,
5, Rue du Val d'Or, St. Cloud.

On their own stand the Blanchard firm show a pair of single-step box-type floats for fitting to the old type XIV Bréguet. These are quite well made, but of no particular novelty.

On the stand of the Ministère de la Marine is exhibited a Blanchard flying-boat, type H.B.3. This is a sea-going reconnaissance and bombing machine, carrying a gunner in the nose of the hull, a two-seat control cockpit just ahead of the wings, and a second gunner aft of the wings.

It is fitted with twin 260 h.p. low compression Hispano-Suiza engines carried side by side in the wing gap on somewhat unusual mountings. Each engine is carried on a pair of fore and aft beams of the usual type, which are supported from the hull by a pair of struts running up from the wing root spar ends. Each pair of struts forms a narrow V considerably raked outwards from the hull, so that the engine bearers are well outside the hull beam. There is one such V over each spar on each side. Over each spar a sturdy steel tube runs across from the outside engine bearer on one side to the outside bearer on the other, thus tying the engine bearers and the open end of each V together and also tying the Vees on opposite sides to each other. The irregular quadrilateral formed by the top of the hull, the inner legs of the V's, and the cross tube is wire cross-braced, so that the engine mounting forms a structure entirely supported by the hull and independent of the wings.

The top wings are supported from this engine mounting structure by a pair of inverted Vees—one forward and one aft—attached to the junction of the horizontal tube and the inner of the engine bearers on each side.

This arrangement of engine and wing supports allows the complete removal of the wings without interference with any of the engine installation, and makes it possible to remove the top wing and to lift an engine straight out with the aid of a crane. In the usual type of twin engine machine where engines are carried from the wings, the removal of an engine is often an extremely awkward job.

The wings are of equal chord, of a fairly thick section, and the lower wing has slightly less span than the other. A

SPECIFICATION.

Span	19.2 m. (63 ft.)	Engines ...	2 Hispano-Suiza
Length...	13.6 m. (44 ft. 7 in.)		260 h.p. each
Height ...	4.2 m. (13 ft. 9 in.)	Wing loading	43 kg./m ²
Wing area	85 m ²		(9 lbs./sq. ft.)
	(915 sq. ft.)	Power loading	7.1 kg./h.p.
Weight empty	2,300 kg.		(15.9 lbs./h.p.)
	(5,060 lbs.)	Max. speed	175 km/h.
Weight loaded	3,765 kg.		(109 m.p.h.)
	(8,283 lbs.)		

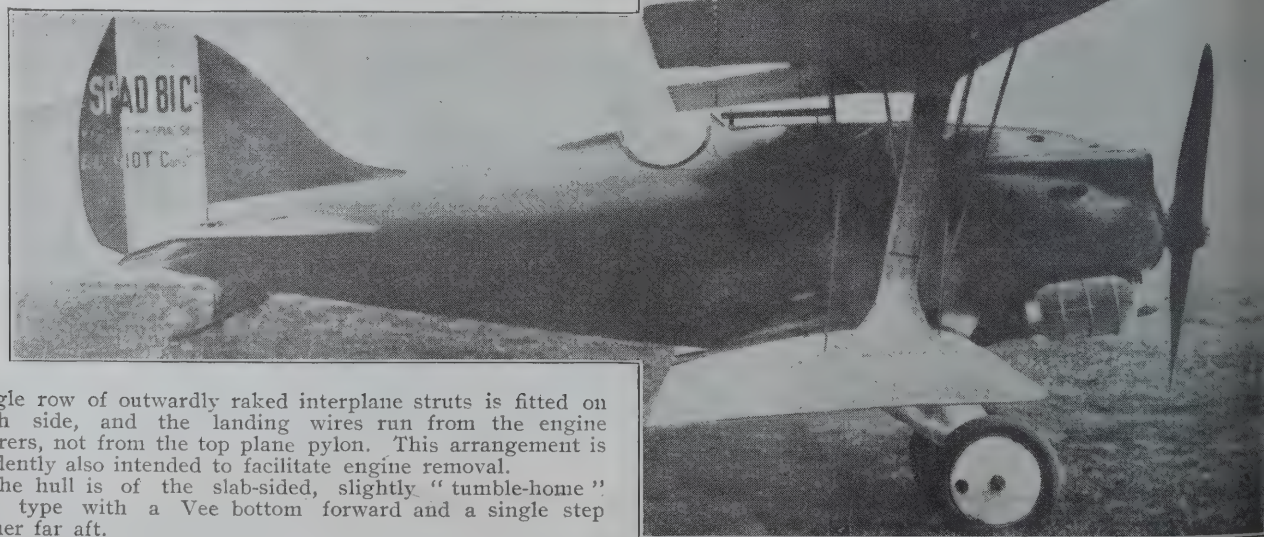
BLERIOT AERONAUTIQUE, Quai General Gallieni
Suresnes, Seine.

M. Louis Blériot, the Great French Pioneer of Aviation, has three Spad-Herbemont single-seaters cooped up under the gallery. The legend has it that M. Blériot wanted the best and biggest stand in the show, to which incidentally his achievements give him a good right, and that not being able to get it he refused to come into the show at all till the last moment by which time all the good stands had been allotted and he had to be content with this side-track.

The three machines shown are typically Herbemont—Herbier, M. Blériot's Austrian designer being employed on the multiple-engined machines which the firm are building. They all have the short tubby fuselage and the good streamlining on which M. Herbemont has specialised.

The most interesting of the three is the Spad 51, a biplane with I struts and a Jupiter engine made by the Gnome Rhône Co. The upper plane is swept back to balance the tail against the light, short engine—which is ugly. Also one cannot believe that it is as efficient as a straight plane. Nevertheless this machine is said to be the fastest climber in France.

If this be so it should make a good defensive fighter, though not necessarily a first-class pursuit ship, for it cannot be as fast on the level or down hill as are the three best American chasing machines.



The Type S.81.C.1 Spad with 300 h.p. Hispano-Suiza engine.

single row of outwardly raked interplane struts is fitted on each side, and the landing wires run from the engine bearers, not from the top plane pylon. This arrangement is evidently also intended to facilitate engine removal.

The hull is of the slab-sided, slightly "tumble-home" box type with a Vee bottom forward and a single step rather far aft.

The Directors of the Bristol Aeroplane Co., Ltd., of Filton, Bristol, invite those interested in the latest and most efficient aircraft engines to visit Stand No. 51, at the Paris Aero Show where the various types of

Bristol

AIRCOOLED AERO ENGINES

are exhibited. Full information concerning the technical features, records and supply of these engines of the

Bristol

AEROPLANES

may be obtained upon the Stand.

The 400 h.p. "Bristol" Jupiter Engine

was the FIRST aircooled engine to pass the British Air Ministry Type Tests. Since then it has carried out an official Type Test on a second occasion and has twice successfully completed 50 hour official tests for the French Government. In both Great Britain and in France it has been successfully submitted to searching tests of 150 hours under Government supervision—a record equalled by no other aero engine.

The 100 h.p. "Bristol" Lucifer Engine

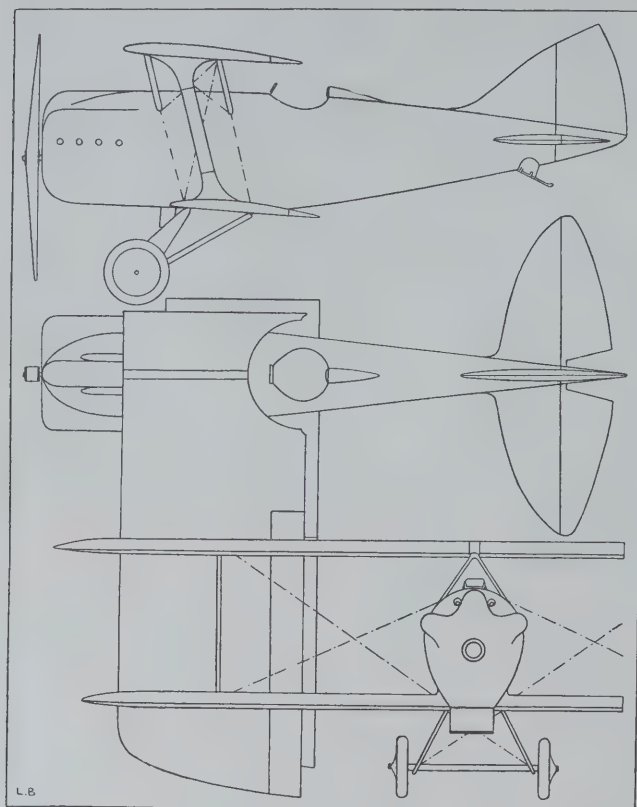
was the FIRST engine of its power to pass the British Air Ministry Type Tests and is still the only engine of its category to have done so. There is no other engine available for flying school work which can show a record for reliability and efficiency in any way comparable with the Lucifer engine.

The 1095 c.c. "Bristol" Cherub Engine

was not only the FIRST engine for light aircraft to satisfy the Type Test schedule of the British Air Ministry, but at the Lympne Light Aeroplane Competitions (the only Competitions in which this engine has participated), 6 of the 7 prizes offered, including every first award, were taken by aeroplanes fitted with "Bristol" Cherub engines.

Telegrams:—"Aviation, Bristol."

Telephone:—3906 Bristol.



The Spad Type 61 (Lorraine-Diétrich 450 h.p.).

A curious feature about all three machines is that the elevator flaps have each a little flap about six inches deep on their trailing edge. This can only be set at different angles when the machine is on the ground and is not adjustable in the air, so presumably it is some sort of trimmer for longitudinal control according to the load the machine is carrying. It seems to be there because as the tail plane is built into the fuselage it cannot be made adjustable.

This machine is fitted with an airscrew designed to give variable pitch. The wooden blades are clamped into sockets which can be rotated on their axes by a gear operated from the pilot's seat. There seems no reason why such a gear should not work. Mr. Turnbull, the Canadian, made quite a good one when at Sage's at Peterboro' during the war. But one will be surprised if M. Blériot's blades stay put in their sockets when the engine begins to rotate rapidly.

The Spad 81 is a similar machine with a 300 h.p. Hispano-Suiza instead of a Jupiter. It has a straight upper plane and two Lamblin radiators.

The Spad 61 is a similar machine but with a Lorraine-Diétrich engine of 450 h.p. The claim is made that it climbs to 4,000 metres (13,000 ft.) in 10 mins. and to 6,000 metres (19,500 ft.) in 23 minutes. If the Jupiter-engined machine has a better climb than that it must be very good indeed.

THE SPAD 51.

Span	9.7 m. (31 ft. 9 in.)	Engine ...	420 h.p. Jupiter
Length.....	6.45 m. (21 ft. 2 in.)	Wing loading ...	52.6 kg./m ²
Height ...	3.1 m. (10 ft. 2 in.)		(9.8 lbs./sq. ft.)
Wing area	25 m ²	Power loading...	2.7 kg./h.p.
	(289 sq. ft.)		(6.7 lbs./h.p.)
Weight empty	792 kg.	Max. speed	265 km/h.
	(1,745 lbs.)		(164 m.p.h.)
Weight loaded ...	1,277 kg.		
	(2,810 lbs.)		

THE SPAD 61.

Span ...	9.62 m. (31 ft. 6 in.)	Engine	450 h.p. Lorraine-Diétrich
Length.....	6.6 m. (21 ft. 8 in.)	Wing loading ...	50.7 kg./m ²
Height ...	3.15 m. (10 ft. 2 1/2 in.)		(10.4 lbs./sq. ft.)
Wing area	30 m ²	Power loading...	3.5 kg./h.p.
	(322 sq. ft.)		(7.8 lbs./h.p.)
Weight light	1,012 kg.	Max. speed	260 km/h.
	(2,214 lbs.)		(161 m.p.h.)
Weight loaded ...	1,522 kg.	Ceiling...8,500 m. (29,000 ft.)	
	(3,350 lbs.)		

THE SPAD 81.

Span ...	9.62 m. (31 ft. 6 in.)	Engine	300 h.p. Hispano-Suiza
Length.....	6.4 m. (21 ft.)	Wing loading ...	42 kg./m ²
Height ...	2.9 m. (9 ft. 6 in.)		(9 lbs./sq. in.)
Wing area	30 m ²	Power loading...	4.2 kg./h.p.
	(322 sq. ft.)		(9.3 lbs./h.p.)
Weight light	839 kg.	Max. speed	250 km/h.
	(1,850 lbs.)		(155 m.p.h.)
Weight loaded ...	1,260 kg.		
	(2,800 lbs.)		

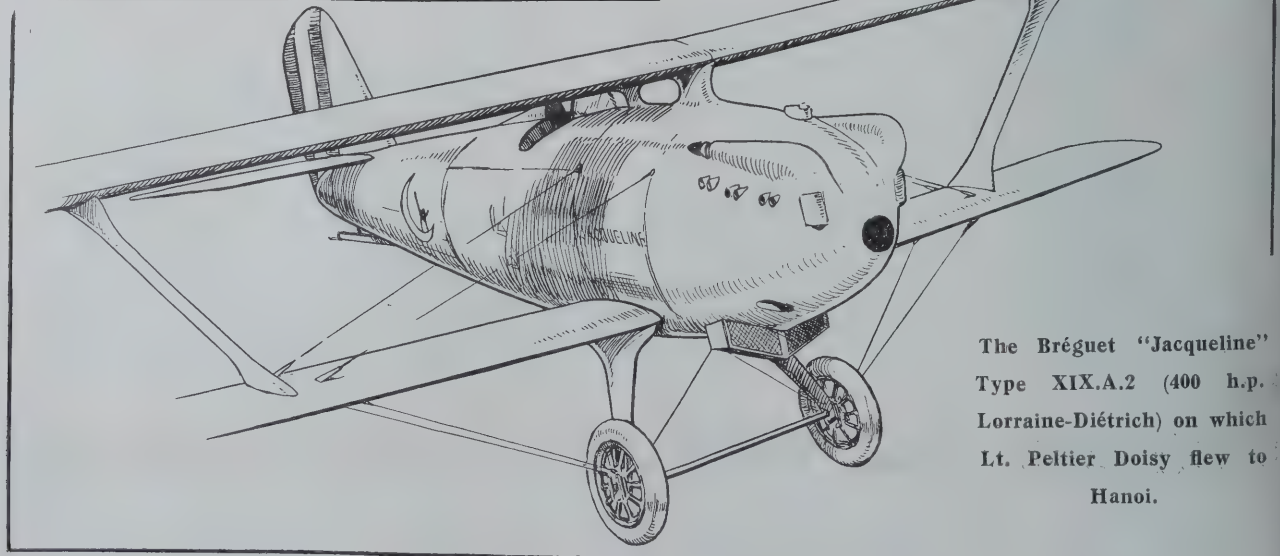
S.A. ATELIERS D'AVIATION LOUIS BRÉGUET, Rue de la Pompe, Paris.

The Bréguet stand is occupied by "Jacqueline"—Capt. Peltier Doisy's famous machine and a skeleton fuselage and one wing of the same type—the XIX. This machine is by now well known to readers of THE AEROPLANE and machines of precisely similar outline and arrangement have appeared at the last two Paris Shows.

From the skeleton components now shown, however, it is obvious that the detailed construction, particularly that of the wings, has been considerably altered since the original model was exhibited.

In so far as the fuselage is concerned the structure of duralumin tubes and wire bracing is really little altered from the even older Bréguet XIV. Straight lengths of tubes of uniform diameter are used with flanged sockets pinned to the tube and bolted together. The flanges are bolted together and are used also for the attachment of struts. Cross-bracing wires are attached to ball joints bolted onto these flanges. Where two diagonal wires cross there is inserted a pair of half-struts fixed at one end to the wires and at the other to a collar on the longerons. At the fore end, and in the engine-mounting, rigid tubular bracing is used. The fuselage is faired out to an oval section by very light duralumin stringers and formers. At the fore end the covering is of duralumin sheet, and aft of the second seat fabric is used.

The wing spars are of I section with flanges of a drawn strip whose two edges are brought together on the centre



The Bréguet "Jacqueline"

Type XIX.A.2 (400 h.p.

Lorraine-Diétrich) on which

Lt. Peltier Doisy flew to

Hanoi.

ROLLS-ROYCE

Aero Engines

THE BEST IN THE WORLD

Some extracts concerning the recent flight of 8,500 miles round Australia from "The Aeroplane" of May 22nd, 1924, entitled

"ON THE AUSTRALIAN TRIUMPH"

"A performance which may fairly be claimed as the finest flight in the history of aviation."

"The durability and reliability shown by the Fairey seaplane and the Rolls-Royce engine have established once more the reputation of English aircraft design and material in the esteem of the aeronautical authorities of foreign nations"

RELIABILITY

Some Successful Flights made by Rolls-Royce Engines:

England to Australia	11,500 miles
England to S. Africa	6,281 miles
England to Sweden (and back)	2,450 miles
England to Constantinople	2,160 miles
Across the Atlantic	1,890 miles
England to Finland	1,100 miles
England to Warsaw	1,050 miles
England to Madrid	855 miles

These flights were accomplished without any change of engines en route

ROLLS-ROYCE LIMITED

14-15 CONDUIT ST., LONDON, W.1 TEL: ROLHEAD PICCY, LONDON. PHONE: MAYFAIR 6040 (4 lines)

line to embrace the web and are rivetted through to it. The web is a flat sheet, stiffened by rivetted-on diagonals pressed to a shallow U section with flanges at each edge. This is a good deal simpler and cheaper than the original lattice box spar, and looks a better job.

The ribs are lattice girders with Zeppelin-type diagonals—not very greatly altered from the originals.

The undercarriage consists of a pair of nearly triangular legs built of duralumin sheet rivetted to heavy gauge channel-formers—apparently of cast light alloy—hinged along one side to the fuselage and tied together at one angle by a fixed axle. This axle carries a slide on which moves a hub—which takes the form of a 6 in. or so disc—carrying a cast aluminium wheel, which is thus free to move up and down the leg except in so far as it is restrained by rubber shock absorbers. These absorbers are entirely inside the wheel rim and are covered by disc fairings.

The fixed axle projects through the wheels and to its ends are attached the main lift wires.

It is understood that owing to the extremely narrow guide which carries the wheel slide there is a tendency for the slide to jam in a hard landing—with somewhat serious results to the wheel and axle.

The skeleton fuselage shown has a very complete equipment installed. There are two synchronised Vickers in the pilot's cockpit, two Lewis guns on the Scarff ring in the after seat, an "under-the-tail" Lewis, an internal bomb-rack for eight fair-sized bombs, an external carrier for a heavy bomb, one vertical and one oblique camera, a rack for a dozen double trays of Lewis-gun ammunition, and many other gadgets. It would undoubtedly give some of our military equipment experts intense joy to have the supervision of the equipment of this machine—but it may be doubted if they would make as neat a job of it as this. Everything goes well inside a perfectly clean body—which is how it should be, but rarely is.

SPECIFICATION.

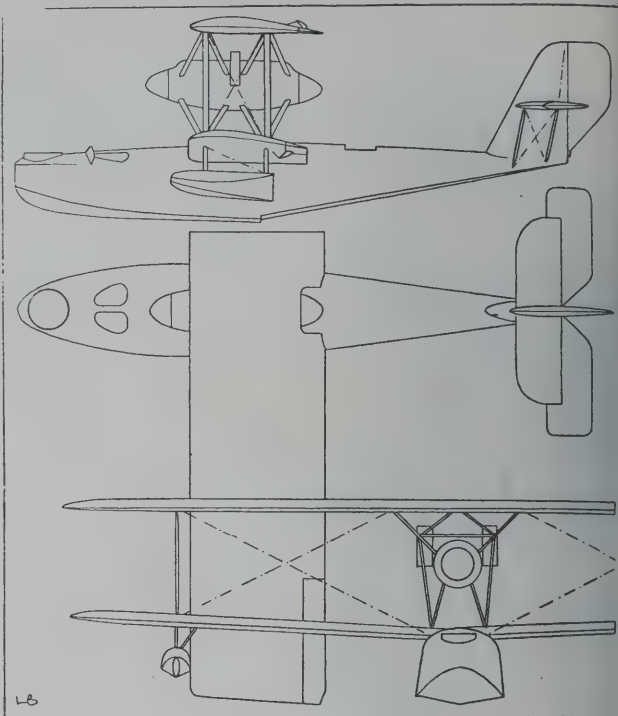
Span (top)	14.83 m. (48 ft. 6½ in.)	Weight loaded	2,020 kg. (4,445 lbs.)
Span (bottom)	11.0 m. (36 ft. 1 in.)	Engine ...	Lorraine-Dietrich 400 h.p.
Length	9.57 m. (29 ft. 2 in.)	Wing loading ...	40.4 kg./m². (8 lbs./sq. ft.)
Height	3.34 m. (10 ft. 11 in.)	Power loading...	5.05 kg./h.p. (11.1 lbs./h.p.)
Wing area	50 m². (555 sq. ft.)	Max. speed	215 km.h. (133 m.p.h.)
Weight empty	1,212 kg. (2,665 lbs.)	Climb to 2,000 m.	(6,560 ft.) 7 min. 28 secs.

CHANTIERS AERO-MARITIME DE LA SEINE, 72, Rue de la Boétie, Paris.

The Chantiers Aero-Maritime de la Seine, the head of which is our old friend Laurence Santoni, formerly of the Deperdussin and Savoia firms, show a splendid specimen of the tandem-engined flying-boat.

This machine, the 33 B., has two Hispano-Suiza engines of 260 h.p. each. Everything about it is so neat and simple that there is really nothing to describe. The finish is excellent and the whole thing is so well cleaned up that it is an example in streamlining compared with some of the flying boats which one has seen, with bits and pieces sticking out all over them.

The crew consists of two pilots, a gunner in the extreme bow, a wireless operator amidships under the engines, and a second gunner aft of the engines. The tanks are amidships with a corridor between them, giving a way to the wireless cabin and the after gun-pit. Bombs are carried under the wings on each side of the hull.



The C.A.M.S. 33 B., with two 300 h.p. Hispano-Suiza engines in tandem.

The wings have one enormous bay only, on each side, but they stand up to their work as experience has shown.

On test the machine has been made to fly without losing height using only one engine, either the forward or after engine doing the job equally well. And when the first of the dozen or so of the type which have been delivered went on its maiden voyage it flew from the works at Sartrouville on the Seine to the port of Cherbourg, a matter of about 200 miles, in 1 hr. 45 mins. After which, as the Navy did not expect its arrival, it sat for nearly two hours in a five-foot sea before it was towed to the Naval Air Station.

THE C.A.M.S. 33 B.

THE C.A.M.S. 33 B.

Span...17.62 m. (57 ft. 10 in.)	Engines ... 2 Hispano-Suiza
Length...13.0 m. (41 ft. 8 in.)	260 h.p. each
Height 4.27 m. (14 ft.)	Wing loading ... 44.6 kg./m ² (9.1 lbs./sq. ft.)
Wing area 19 m ² . (990 sq. ft.)	Power loading ... 7.9 kg./h.p. (17.3 lbs./h.p.)
Weight empty 2,300 kg. (5,040 lbs.)	Max. speed 175 km.h. (109 m.p.h.)
Weight loaded 4,100 kg. (9,020 lbs.)	Ceiling...4,300 m. (14,000 ft.)

AEROPLANES CAUDRON, 52/72, Rue Guynemeyer, Issy-les-Molineaux.

The Caudron show consists of four machines, any one of which could be recognised anywhere as a Caudron.

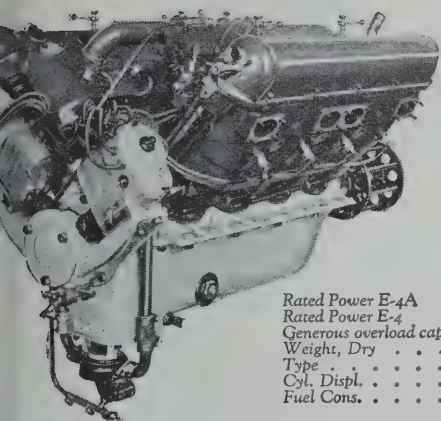
The C.168 is a two-seater folding wing machine fitted with the 70 h.p. Anzani. If it is not precisely of the same type as a similar machine shown two years ago at least, it would require a very sharp eye to distinguish the difference. It is of normal timber construction, with pilot below the centre section and passenger aft. It can be fitted with dual controls and with a device for declutching the control in the after seat.



The C.A.M.S. 33 B. with tandem Hispano-Suiza engines—a notably good flying-boat.

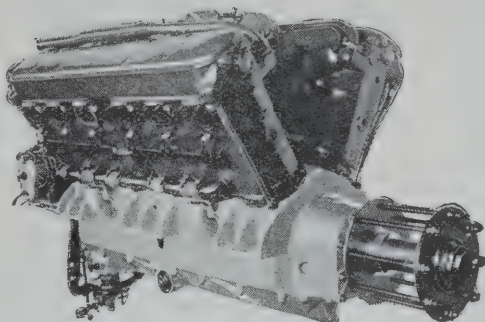
WRIGHT ENGINES

A DEPENDABLE ENGINE FOR EVERY TYPE OF PLANE



WRIGHT T-3—650 H.P.

Rated [650 H.P. at 2000 r.p.m.
Power [550 H.P. at 1800 r.p.m.
Generous overload capacity
above rated powers
Weight, Dry 1160 lbs.
Type 12 cyl., 60° Vee
Cyl. Displ. 1947 cu. in.
Fuel Cons. . .45 to .5 lbs. per
H.P. hr.
Length 55 3-16" Width 30 7-8"
Height 26 1-4"

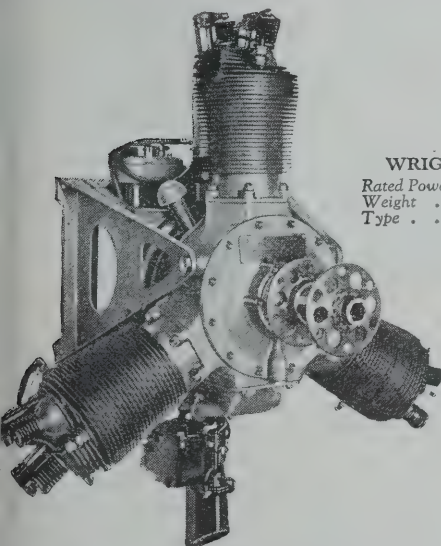


WRIGHT E-4 and E-4A

Rated Power E-4A 240 H.P. at 2100 r.p.m.
Rated Power E-4 200 H.P. at 1800 r.p.m.
Generous overload capacity above rated powers
Weight, Dry 480 lbs.
Type 8-cyl., 90° Vee
Cyl. Displ. 718 cu. in.
Fuel Cons. 48 lbs. per H.P. hr.

250 HOUR DURATION TEST

The E-4 was recently tested by the U. S. Govt. for 250 hours at full throttle over 200 H. P. and 1800 revs. It gained power during this run. The extreme dependability is due to 7 years' development on this size and type. The E-4 is the sixth yearly production model and the E-4A the seventh.



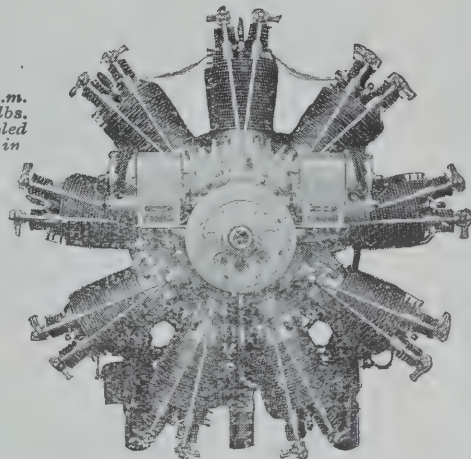
WRIGHT L-4—60 H.P.

Rated Power, 60 H.P. at 1800 r.p.m.
Weight 175 lbs.
Type 3-cyl., air cooled

The L-4, a dependable 60 H.P., lightweight engine. A very even torque is obtained. It has been flown on hard tests with the spark plugs removed from one cylinder. Low in cost, it is available for small commercial planes as well as messenger, shipboard and submarine planes.

WRIGHT J-3 220 H.P.

Rated Power
220 H.P. at 1800 r.p.m.
Weight 442 lbs.
Type, 9-cyl., air cooled
Cyl. Displ. 787 cu. in.



WINNER CURTISS MARINE TROPHY 1922

The J-3 is for use in training planes, shipboard planes, seaplanes and small observation planes. Simplicity, lightweight and ruggedness make this a world's leader for 220 H.P.

WORLD'S SPEED RECORD

H-3 Superfighter, 400 H. P. (Hispano Type). Weight 620 pounds, 8-cylinder, 90° Vee Water Cooled, 1126 cubic inches. F. A. I. world's speed record 500 km. at 164 miles per hour.

THE above five types of engines are all in production and no experimental types are included. Our plant is tooled up to make prompt deliveries on large or small quantities and a few of some types are in stock for immediate shipment. The prices are compatible with new aviation engines built in any other country.

Our Corporation also designs, builds and operates planes. A large staff is employed in cooperating with civil and military airplane designers, manufacturers and operators to incorporate promptly in our engines the recommendations made from flying experience. Enquiries from military, naval and civil sources are solicited.



WRIGHT AERONAUTICAL CORPORATION

PATERSON, NEW JERSEY, U.S.A.

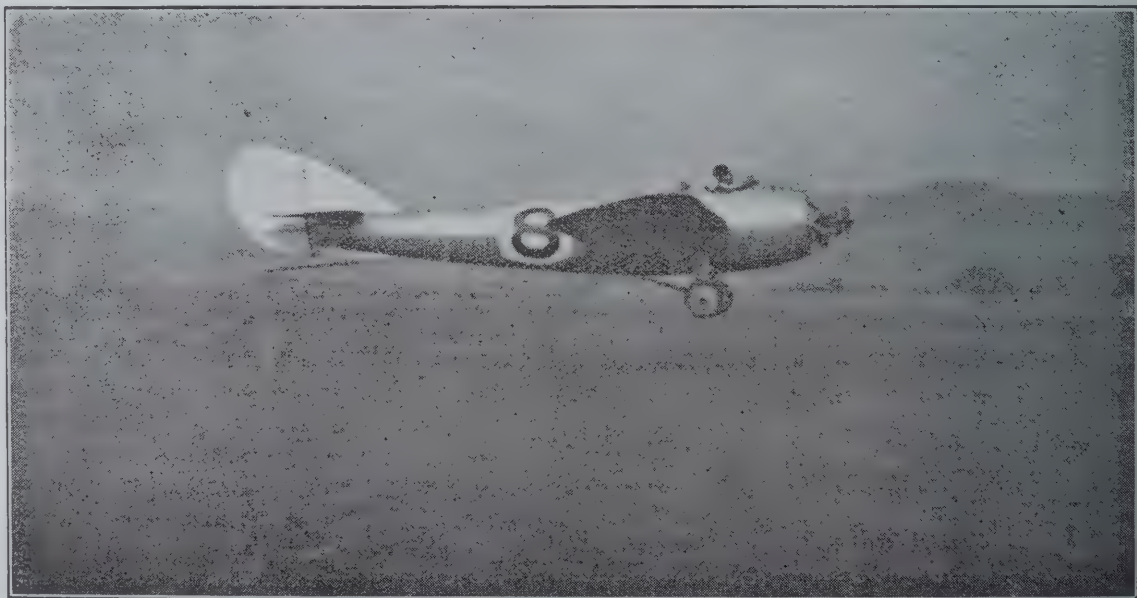
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PREMIER CONSTRUCTORS



1919. Short "Silver Streak." **FIRST** British All Metal Commercial Aeroplane.



1924. Short "Satellite." **FIRST** British All Metal Light Aeroplane.

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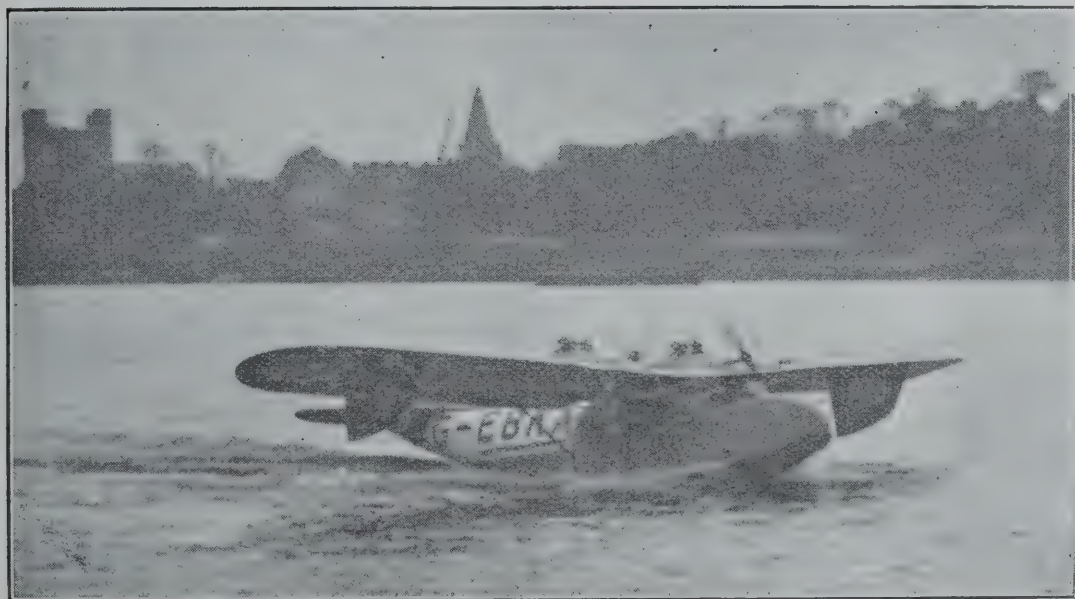
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ALL METAL AIRCRAFT.



1923. Short "Springbok."

FIRST British All Metal Military Aeroplane.



1924. Short "Stellite."

FIRST British All Metal Light Flying Boat.

ROSS, S.W.1.

Regent 378.



The Dewartine D1.C1
(300 h.p. Hispano-Suiza
engine), one of the best
French avions de chasse.

The wings are of equal chord and span, and are fitted with single bay bracing of streamline wire, with a split jury strut at the root of the front spar, which serves to support the wings when folded. When the wings are in flying position this strut faces the front centre section strut and the two combined give a normal streamline section.

The C.99 is a two-seater reconnaissance and bombing machine fitted with the new 450 h.p. Vee Hispano. In form it is a single bay biplane, with a lower wing of considerably less span than that of the upper one and with interplane struts very much raked outwards. The wings are of a distinctly thick section and streamline wire bracing is used. Both pilot's and gunner's seats are behind the wings, and it seems difficult to believe that either of them can have very much of a view for any purpose. The undercarriage is a normal rubber sprung Vee type.

The machine is fitted with one synchronised Vickers gun firing forwards, twin Lewis guns on the usual Scarff rings, and one Lewis firing aft out of the bottom of the fuselage. Five hundred rounds of ammunition are carried for each gun. Behind the Scarff ring a camera which can be used for either vertical or oblique photography is arranged. The pilot is provided with W.T. sending and receiving equipment and a bomb-carrier for twelve 10 kilo bombs can also be added to the equipment.

The structure of the whole appears to be of the normal wire-braced spruce type. Detailed dimensions are not available.

The Caudron C.59 is another survival from the 1922 Show. It is a tandem two-seater training biplane in fairly extensive use by the French Army and is fitted with the 180 h.p. Hispano-Suiza engine. The machine is quite unexciting and in no way abnormal.

The C.127 is practically a C.59 of increased wing surface and fitted with the 80 Le Rhône engine. It also is designed for training purposes.

CAUDRON SPECIFICATIONS.

THE C.168.

Span ...9.0 m. (27 ft. 6 in.)	Weight loaded 572 kg. (1,260 lbs.)
Length 6.13 m. (20 ft. 10 in.)	Engine Anzani 70 h.p.
Height 2.42 m. (7 ft. 11 in.)	Wing loading 28.6 kg./m ² . (5.7 lbs./sq. ft.)
Wing area 20 m ² . (222 sq. ft.)	Power loading 8.17 kg./h.p. (18 lbs./h.p.)
Weight empty 342 kg. (753 lbs.)	Max. speed 150 km/h. (93 m.p.h.)

THE C.99.

Surface ... 44 m ² . (489 sq. ft.)	Estimated speed 225 km/h. (136 m.p.h.)
Weight loaded ... 2,000 kg. (4,450 lbs.)	Estimated ceiling 7,500 m. (23,600 ft.)

THE C.59.

Span 10.24 m. (33 ft. 7 in.)	Engine Hispano-Suiza 180 h.p.
Length 7.8 m. (25 ft. 7 in.)	Wing loading 37.3 kg./m ² . (7.5 lbs./sq. ft.)
Height ... 2.7 m. (8 ft. 2 in.)	Power loading 5.5 kg./h.p. (12.1 lbs./h.p.)
Wing area 26.2 m ² . (292 sq. ft.)	Speed, max. ... 180 km/h. (112 m.p.h.)
Weight empty 700 kg. (1,540 lbs.)	
Weight loaded ... 1,000 kg. (2,200 lbs.)	

THE C.127.

Span ... 12.0 m. (39 ft. 4 in.)	Engine ... Le Rhône 80 h.p.
Length ... 8.3 m. (27 ft. 5 in.)	Wing loading ... 23 kg./m ² . (4.6 lbs./sq. ft.)
Height ... 2.83 m. (9 ft. 3 in.)	Power loading 9.9 kg./h.p. (21.8 lbs./h.p.)
Wing area 34.5 m ² . (380 sq. ft.)	Speed 132 km/h. (72 m.p.h.)
Weight empty 510 kg. (1,122 lbs.)	
Weight loaded 794 kg. (1,747 lbs.)	

CONSTRUCTIONS AERONAUTIQUE E. DEWOITINE, Toulouse.

The Dewoitine D.7 is an extremely neat light aeroplane—essentially similar to the Dewoitine glider—fitted with a new

six-cylinder water-cooled Vaseline engine, which is said to give 35 h.p. at 3,000 r.p.m. for a weight of 62 kg. (136 lbs.). There was unfortunately in attendance on this machine an enthusiastic gentleman who insisted on speaking English. As he evidently knew more about English than he did about aeroplanes, his statements are given with reserve. According to him, however, the machine has a speed range of from 18 to nearly 100 m.p.h.—which is a record of over 5 to 1—carries fuel for 8 hours' flying at 125 km/h. (77 m.p.h.), and will remain in the air for half-an-hour after the fuel supply is exhausted.

But, neglecting such tales, the machine is clean, and taking looking, and subject to the engine functioning will undoubtedly have an excellent performance.

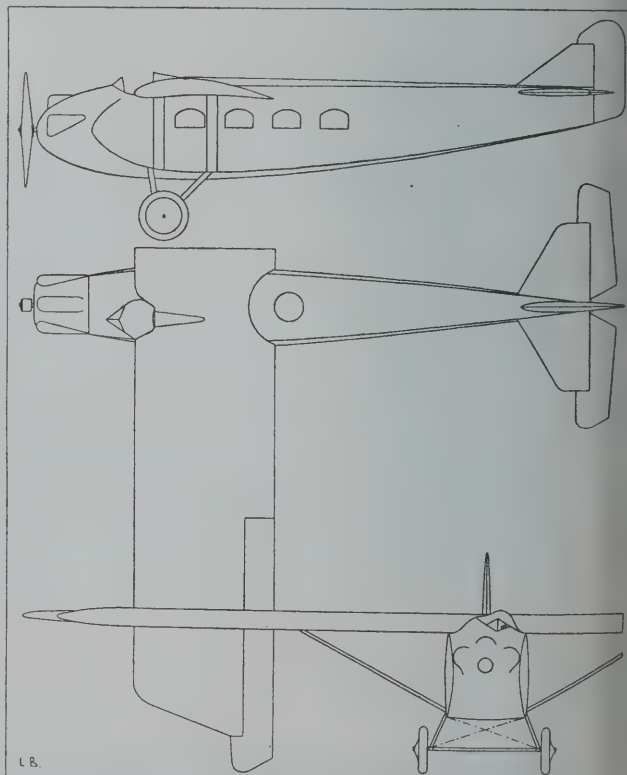
The D.14 is an eight-seater, strut-braced cabin monoplane with the 450 h.p. three-row Lorraine-Dietrich engine. It is fitted to carry eight passengers plus luggage, but the luggage compartment may be fitted with two extra seats and ten passengers accommodated in comfort.

Apart from the engine mounting, which is of tube, the fuselage is of timber. The cabin is built on formers and plywood covered.

The wings—on top of the fuselage—are of a thick "Tadpole" type section, and bracing struts run from the bottom of the fuselage out to about halfway along each wing.

The tail is fitted with balanced rudders and elevators. To English eyes it appears to lack both stabilising and control surface—particularly in view of the type of section used—but as this is true of practically all French thick-winged machines presumably we have become captious on this subject.

The machine is well made and has generally a good appearance.



The Dewoitine 14 Commercial Monoplane.



Aircraft.

PARIS Exhibition.

Stand No. 43.

Grand Nef.

WE ARE EXHIBITING THE

D.XIII.

The latest type of single-seater
pursuit machine, powered with a
450 h.p. Napier "Lion" engine.

Early next year we shall put into production AN IMPROVED TYPE
OF GENERAL-PURPOSE TWO-SEATER MACHINE, to be called
THE C.V.,

in which has been incorporated all the experience gained as the result of
the very extensive use of the Fokker C.IV in many parts of the world.

Details and specifications on request.

Fokker Commercial Air Limousines are in use by five of the most
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TOURING, ETC. AMPHIBIANS AND FLYING BOATS.

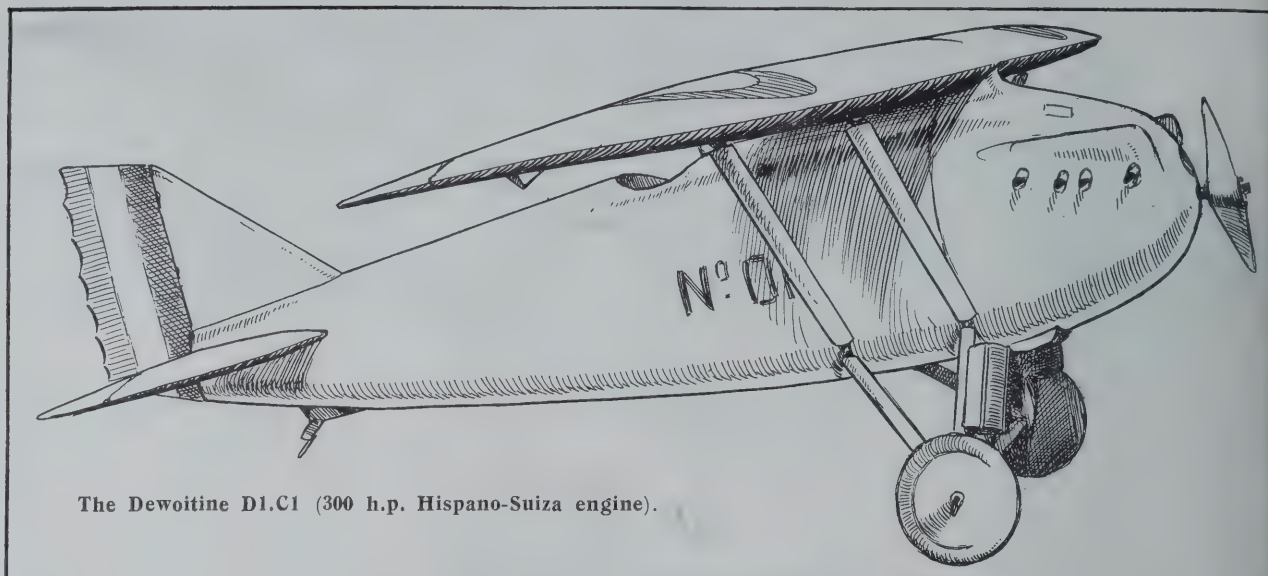
Contractors to the Dutch and many Foreign Governments.

N. V. NEDERLANDSCHE Vliegtuigenfabriek

Rokin 84,

AMSTERDAM.

Cables: "Fokexport."



The Dewoitine D1.C1 (300 h.p. Hispano-Suiza engine).

SPECIFICATION.

Span ... 18.8 m. (61 ft. 8 in.)	Pay load...600 kg. (1,320 lbs.)
Length 12.2 m. (40 ft.)	Fuel 350 kg. (770 lbs.)
Height 3.35 m. (11 ft.)	Engine ... 450 h.p. Lorraine.
Wing area 45.5 m ² . (505 sq. ft.)	Wing loading ... 60 kg./m ² . (12.2 lbs./sq. ft.)
Weight empty 1,600 kg. (3,520 lbs.)	Power loading ... 6.0 kg./h.p. (13.7 lbs./h.p.)
Loaded 2,800 kg. (6,160 lbs.)	

The D1.C1, probably the best known of Dewoitine machines, is a high performance single-seat fighter entirely constructed of light alloy. In form it is a thick-winged monoplane with rigid steel bracing. The fuselage is a duralumin sheet-skinned affair, of considerable cross-sectional area. It carries in its nose a 300 h.p. Hispano.

The methods of construction employed in this machine are quite normal—the fuselage is plated upon a series of formers tied together by four heavy longerons and a number of light channel stringers. The wings have box section duralumin spars, deepest at the strut joints and tapering to each end. The ribs are lattice type of duralumin tube.

The wing is raised slightly above the fuselage top, and the pilot is seated behind it so that he may see both above and below the plane. The particular machine on the stand had sundry dents in the engine cowling and a crumpled top corner to its rudder—the result of *capotage* on landing. It was exhibited in this condition to demonstrate the robustness of its general structure.

SPECIFICATION.

Span ... 11.5 m. (37 ft. 8 in.)	Wing loading ... 62 kg./m ² . (12.2 lbs./sq. ft.)
Length ... 7.5 m. (24 ft. 7 in.)	
Height 2.75 m. (9 ft.)	Power loading...4.13 kg./h.p. (9.1 lbs./h.p.)
Wing area 20 m ² . (222 sq. ft.)	Max. speed 247 km/h. (153 m.p.h.)
Weight empty 820 kg. (1,804 lbs.)	Landing speed 80 km/h. (50 m.p.h.)
Weight loaded 1,240 kg. (2,728 lbs.)	Climb to 3,000 m. (9,840 ft.) (6 m. 50 s.)
Engine ... Hispano 300 h.p.	

ETABLISSEMENTS FARMAN, Rue de Silly, Billancourt, Seine.

The most imposing apparatus on the Farman stand was the Jabiru passenger-carrier with two 400 h.p. Lorraine-Dietrich engines. The machine is essentially a rigidly braced mono-

plane with its wing of enormous chord and comparatively small span on top of the fuselage. At the bottom of the fuselage on each side is a sort of winglet with an engine nacelle at each end. Struts run down from the fuselage top to the winglet just inside the engines and further struts run up from the outside of the engines to the upper wing. Beneath each engine nacelle is an undercarriage.

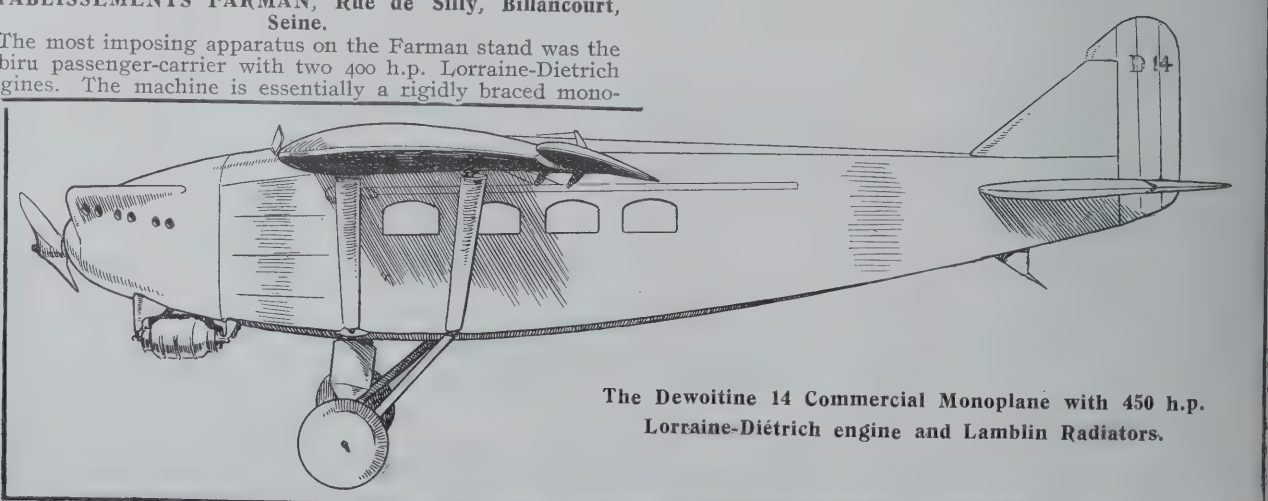
The wing is of rather curious plan form—it may be described as an elongated ellipse with the ends cut off. Owing to the enormous chord on the centre line it looks to have an aspect ratio of about two, but from the dimensions the effective value is about four.

The central fuselage is of very large cross-section (2 m. high by 1.5 m. wide), and the pilot's seat is perched in the top of the front thereof, where he has as nearly a perfect view as is possible. Below is a luggage compartment, and behind a very roomy cabin seated for a dozen passengers or so. The machine has a distinctly heavily cambered wing, and compared with the chord the tail is both small and short and it is difficult to believe that the control can be particularly good. The machine is certainly not beautiful, but it has done a good deal of flying and certainly appears to be efficient, and the machine is remarkably fast.

SPECIFICATION.

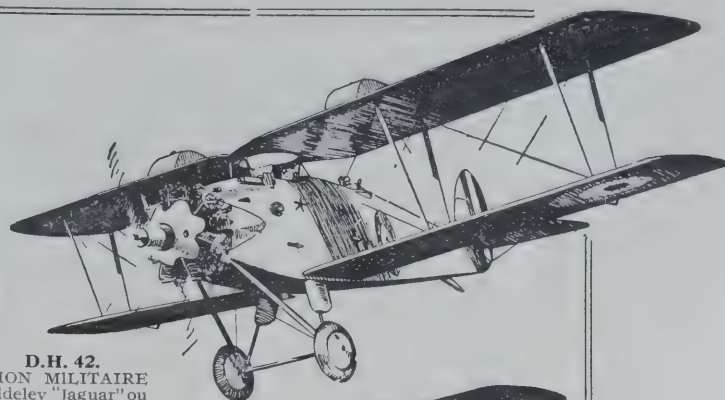
Span ... 19.0 m. (63 ft. 4 in.)	Engines 2 Lorraine-Dietrich 400 h.p. each.
Length 13.68 m. (44 ft. 10 in.)	Wing loading ... 57.7 kg./m ² . (11.5 lbs./sq. ft.)
Height 4.48 m. (14 ft. 8 in.)	Power loading 6.5 kg./h.p. (14.3 lbs./h.p.)
Wing area 90 m ² . (995 sq. ft.)	Weight empty 3,200 kg. (7,040 lbs.)
Weight empty 3,200 kg. (7,040 lbs.)	Max. speed 208 km/h. (129 m.p.h.)
Weight loaded 5,200 kg. (11,440 lbs.)	

The Farman A.2 is a two-seater bomber and reconnaissance two-seater, of very similar general arrangement to the Jabiru, except that there are no engines on the wing roots at the bottom of the fuselage, but there is instead one 500 h.p. Farman engine in the nose of the fuselage. The lower wing-



The Dewoitine 14 Commercial Monoplane with 450 h.p. Lorraine-Dietrich engine and Lamblin Radiators.

AVIONS DE HAVILLAND



D.H. 42.
AVION MILITAIRE
(Siddley "Jaguar" ou
Bristol "Jupiter").



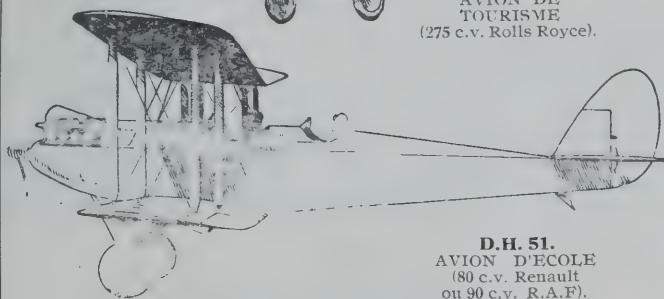
D.H. 50.
LIMOUSINE
(4 passagers)
(230 c.v. Siddley
"Puma").



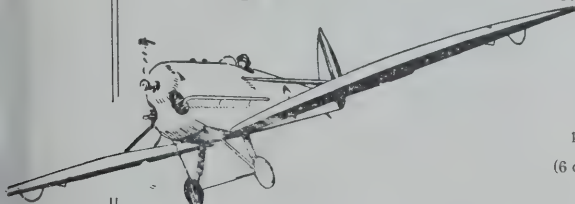
D.H. 34.
AVION DE TRANS-
PORT (11 Places)
(450 c.v. Napier
"Lion").



D.H. 37.
AVION DE
TOURISME
(275 c.v. Rolls Royce).



D.H. 51.
AVION D'ECOLE
(80 c.v. Renault
ou 90 c.v. R.A.F.).



D.H. 53.
AVIONETTE
pour le sport et
l'exercice
(6 c.v. Blackburne).

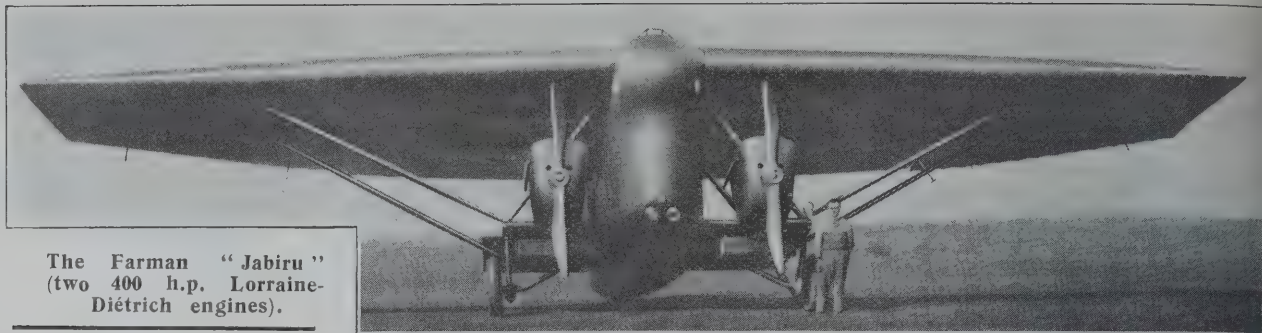


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ENGLAND.

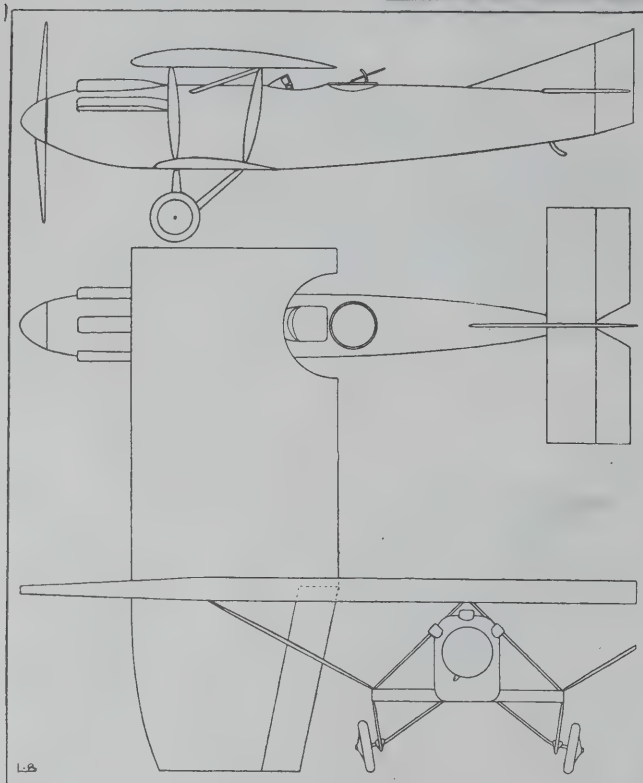
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The Farman "Jabiru"
(two 400 h.p. Lorraine-Dietrich engines).



lets thus serve only as part of the bracing system except in so far as they give a little added wing surface. The top wing is lifted a little above the fuselage and the pilot and gunner are both behind it. The plan form is not unlike that of the Jabiru, but the aspect ratio is a little better than in that

machine. The chord at the centre line is by no means negligible, however, and as the Farman engine—whatever its merits otherwise—certainly occupies more cubic feet per h.p. than any other there is an enormous amount of space in front of the pilot. His seat is certainly 15 ft. behind the nose of the fuselage and his view forward and downward must be extremely poor.

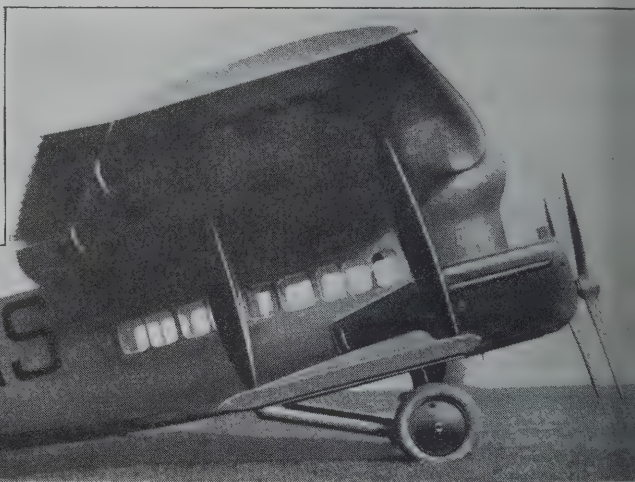
The machine carries a synchronised gun firing forward and a twin Scarff mounting in the rear seat, another Lewis firing under the tail, and is equipped with wireless, camera, and bomb-gears. It is extremely ugly and its appearance is not enhanced by the coat of yellow ochre with which it is uniformly adorned.

SPECIFICATION.

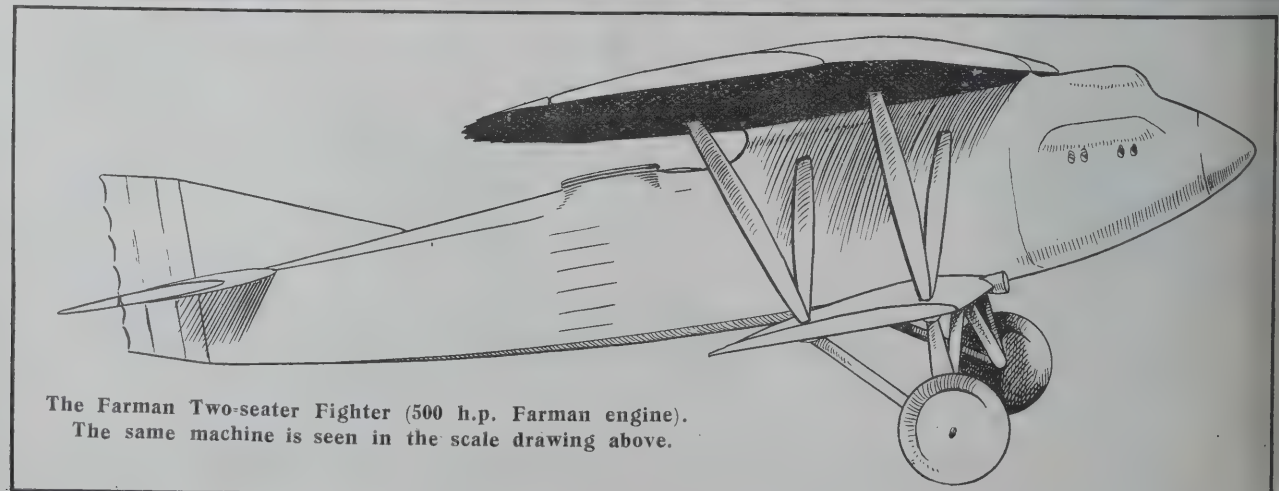
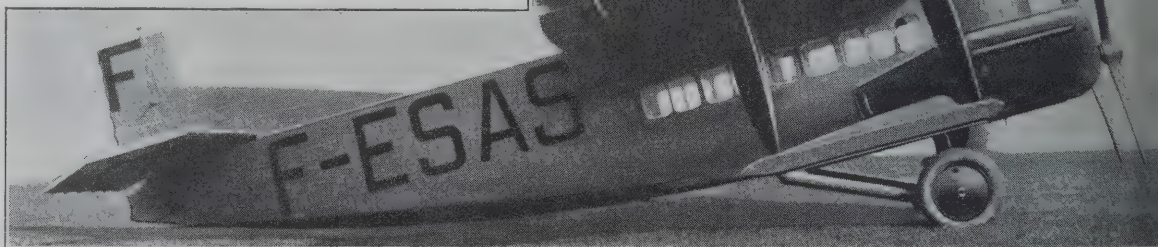
Span ... 15.0 m. (49 ft. 2 in.)	Engine Farman W.E.1
Length ... 10.5 m. (34 ft. 5 in.)	500 h.p.
Height ... 3.4 m. (11 ft. 2 in.)	Wing loading ... 48 kg./m. ²
Wing surface 52 m ² . (575 sq. ft.)	(9.6 lbs./sq. ft.)
Weight empty 1,500 kg. (3,300 lbs.)	Power loading ... 5 kg./h.p. (11 lbs./h.p.)
Total weight 2,500 kg. (5,500 lbs.)	Speed 222 km/h. (137 m.p.h.)
	Ceiling ... 7,000 m. (23,000 ft.)

A large amount of space on the Farman stand was occupied with the fuselage and centre section of the Farman B.N.4, the enormous four-engined night-bomber which has appeared in the last two shows. It is now fitted with four of the 500 h.p. Farman engines instead of the 400 Lorraine-Dietrich engines previously attached to it.

(To be continued.)



The
Farman
"Jabiru."



The Farman Two-seater Fighter (500 h.p. Farman engine).
The same machine is seen in the scale drawing above.



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THE ROYAL AIR FORCE.

The London Gazette.

Dec. 2.

GENERAL DUTIES BRANCH.—Flt. Cadet G. H. Loughnan having successfully passed through the R.A.F. (Cadet) College, is granted a perm. comm. as a Plt. Off. with effect from and with seniority of Oct. 31; Flg. Off. C. McC. Vincent, D.F.C., is granted a perm. comm. in the rank stated (Dec. 3); G. S. White is granted a S.S. comm. as a Flg. Off., with effect from, and with seniority of, Nov. 24.

The following Plt. Offs. are promoted to rank of Flg. Off.:—C. J. Pooley, A. E. Stewart (April 2); W. P. Wiltshire, B. H. Shaw (June 2); G. H. Rawlinson, H. J. Storey (Aug. 13).

Flt. Lt. L. W. Jarvis is placed on half-pay, Scale B (Nov. 20). The following are transferred to the Reserve, Class C:—Flt. Lts.—H. H. Clarke (Nov. 28); C. H. Tancred, O.B.E. (Dec. 3). Flg. Off.—W. R. Rogers (Nov. 28).

Flg. Off. O. C. Noel (Lt., Indian Army, retd.), resigns his S.S. comm. (Dec. 1); Plt. Off. R. P. Keely resigns his S.S. comm. (Dec. 1); Plt. Off. D. K. Power is dismissed the service by sentence of General Court Martial (Nov. 20).

STORES BRANCH.—Flg. Off. A. J. Cox, M.B.E., is granted a perm. comm. in the rank stated (Dec. 3); Flg. Off. W. E. V. Richards is granted a perm. comm. in the rank stated for accountant duties (Dec. 3).

MEDICAL BRANCH.—The following are granted S.S. comms. as Flg. Offs. with effect from and with seniority of Nov. 19:—W. A. Beck, M.B., D.P.H., J. Parry-Evans.

RESERVE OF AIR FORCE OFFICERS.—The following are granted comms. on probation in the General Duties Branch, in the ranks stated (Dec. 2):—CLASS A: Flg. Offs.—A. J. R. Adam, F. Horsley, J. C. McCormick, M. V. Molony, H. L. Taylor, J. M. Walker, C. N. Wylam. Plt. Off.—J. W. Brown. CLASS B: Plt. Off.—W. Wilson. Plt. Off. H. B. Elwell is confirmed in rank (Dec. 16, 1923) (substituted for notification in *Gazette*, Nov. 25). Flg. Off. H. A. V. Kirk is transferred from Class A to Class C (Dec. 2). The following relinquish their comms. on account of ill-health, and are permitted to retain their ranks (Dec. 3):—Flt. Lt. J. M. Burke, Flg. Off. H. Laycock.

Appointments.

Week ending Dec. 8.

GENERAL DUTIES BRANCH.—Group Captains J. L. Forbes, O.B.E., to Air Ministry on appointment as Deputy Director of Armament, 10/12. R. P. Ross, D.S.O., A.F.C., to Electrical and Wireless School, Flowerdown, pending taking over command, 15/12.

Wing Commander E. D. M. Robertson, D.F.C., to H.Q., Coastal Area, for duty as Fleet Aviation Officer on Staff of Commander-in-Chief, Atlantic Fleet, in H.M.S. *Revenge*, 10/12.

Flight Lieutenants R. E. G. Fulljames, M.C., to No. 28 Sqdn., India, 2/11. A. Ferris, to Aircraft Depot, Egypt, 1/11. W. H. Ellison, to R.A.F. Depot (Non-effective Pool), on transfer to Home Estab., 4/11. G. O. Venn, to No. 31 Sqdn., India, instead of to No. 5 Sqdn. as previously notified, 3/10. J. Oliver, A.F.C., to H.Q., India, 2/11. S. N. Cole, to No. 1 S. of T.T. (Boys), Halton, 20/11. E. Burton, to No. 1 S. of T.T. (Boys), Halton, on transfer to Home Estab., 4/11. T. M. Williams, M.C., D.F.C., to No. 406 Flight, Leuchars, 5/12.

Flying Officers G. R. Oliver, to R.A.F. Depot on transfer to Home Estab., 4/11. E. Cuthbert, C. S. Hartung, M.M., and A. P. C. Hannay, M.C., to R.A.F. Depot (Non-effective Pool), on transfer to Home Estab., 4/11. F. Woolley, D.F.C., to I.A.A.D., Henlow, 8/11. (Hon. Plt. Lt.) L. S. Ingle, M.C., to Aircraft Park, India, 31/10. L. S. Hamilton, and A. B. Smith, M.C., to No. 2 Sqdn., Manston, 15/12. V. Harris, to No. 3 Sqdn., Upavon, 15/12.

Pilot Officers.—The undermentioned Pilot Officers are all posted with effect from 15/12: L. W. C. Annable, S. E. Bulloch, A. F. Hutton, G. W. P. Irwin, F. W. Moxam, and D. Robinson, to No. 4 Sqdn., Sth. Farnborough. E. C. Boucher, and E. H. Fielden, to No. 25 Sqdn., Hawkinge. R. W. E. Bryant, and P. P. Grey, to No. 41 Sqdn., Northolt. J. E. Clayton, and F. F. Wilkinson, to No. 19 Sqdn., Duxford. R. K. Coupland, H. T. R. Cripps, G. H. Jennings-Bramly, J. C. Marey, J. F. Nicholas, and C. F. Stevenston, to No. 13 Sqdn., Andover. P. Cranswick, M.C., to No. 3 Sqdn., Upavon. T. H. Pinney, and D. W. J. Meagher, to No. 111 Sqdn., Duxford. L. R. Gladwin-Errington, and A. E. P. Smith, to No. 17 Sqdn., Hawkinge. G. D. Green, G. W. R. Russell, and V. W. Soltau, to No. 2 Sqdn., Manston. J. Summers, and W. A. Tattersall, to No. 29 Sqdn., Duxford.

MEDICAL BRANCH.—Squadron Leaders (Medical) H. B. Porteous, M.B., to H.Q., Inland Area, 28/11. J. Rothwell, M.B., to No. 7 Group H.Q., Andover, 23/11. Flight Lieutenant (Hon. Sq. Ldr.) (Medical) W. R. Kemp, B.A., to R.A.F. Depot, 3/12.

Sir Samuel Hoare's Policy.

Sir Samuel Hoare, the Secretary of State for Air, at an interview at the Air Ministry on Dec. 3 said that the formation of the Auxiliary Air Force and the Special Reserve were well under way and that he hoped that in the course of the next year about five of these non-regular squadrons would have been formed. The Auxiliary squadrons were to be recruited upon a voluntary basis while the Special Reserve squadrons would have a nucleus flight of regular personnel. Each squadron would be based on some suitable engineering or industrial centre.

Sir Samuel Hoare said that the policy laid down by himself eighteen months ago had been carried on without interruption during Labour's term of office. He was particularly anxious to keep the field of Aviation, both military and civil, free from party politics. He went on to say that the Air Command in Iraq had been a remarkable success and the Air Force had maintained order there in very difficult circumstances and with what would have been regarded as a very small garrison before the advent of air power.

Turning to Civil Aviation the Secretary of State for Air said that the operations of Imperial Airways had been satisfactory and there was no risk of the contract made with the

Government being unfulfilled. He was particularly interested in extending British air routes to Prague. At the back of his mind was the ultimate extension of British air route to India and possibly to Australia. An Imperial air route would have reactions of the greatest importance upon Imperial life in many directions.

Sir Samuel Hoare concluded by saying that three experimental machines with three engines were being built, one had been built and orders had been placed with Armstrong Whitworth Aircraft Ltd., and with the Hawker Engineering Co., so that as far as possible the equipment would be the same when the Imperial routes could be started.

The Wakefield Boxing Competitions.

The Boxing Competitions for the Wakefield Challenge Trophies took place at Henlow on Dec. 3 and 4.

Kenley won both trophies for the second year in succession, the Officers' team totalling 21 points and the Airmen's 42. The points for the various stations were as follow: Officers—Kenley, 21; Spittlegate, 11; Andover, 10; Henlow, 9; Northolt, 7. Airmen—Kenley, 42; Andover, 35; Halton, 31; Henlow, 26; Northolt, 23; Spittlegate, 21; Cranwell, 21; Shrewsbury, 16; Lee-on-Solent, 13; Uxbridge, 13; Leuchars, 6.

The final results were as follows:—

OFFICERS' EVENTS.

Feather-weight.—Final: Flg. Off. Fazez (Kenley) knocked out Plt. Off. Walker (Spittlegate) in the first round.

Light-weight.—Final: Flg. Off. Gausson (Henlow) beat Plt. Off. Brodie (Kenley) on points.

Welter-weight.—Semi-finals: Flg. Off. Simons (Kenley) beat Plt. Off. Fuller-Good (Andover) on points. Flg. Off. Frail (Henlow) knocked out Flg. Off. Rousen (Northolt) in the second round. Final: Frail knocked out Simons in the first round.

Middle-weight.—Semi-final: Flg. Off. Roupell (Kenley) beat Plt. Off. Wilson (Spittlegate) on points. Final: Plt. Off. Paget (Andover) knocked out Roupell in the first round.

Catch-weight.—Final: Plt. Off. Chichester (Kenley) knocked out Plt. Lt. Spackman (Northolt) in the third round.

AIRMEN'S EVENTS.

Fly-weight.—Semi-finals: AC. McHendrie (Kenley) beat A.C. Westob (Andover) on points. AC. Harrington (Spittlegate) beat L.A.C. Good (Cranwell) on points. Final: McHendrie beat Harrington on points.

Bantam-weight.—Semi-finals: Cpl. Fort (Henlow) beat AC. Oakshott (Spittlegate) on points. Cpl. West (Halton) beat AC. Cowan (Cranwell) in an extra round. Final: Fort beat West on points.

Feather-weight.—Semi-finals: AC. Stockwell (Henlow) knocked out AC. Simpson (Cranwell) in the first round. AC. Lambert (Andover) beat AC. Warren (Northolt) on points. Final: Lambert beat Stockwell after an extra round.

Light-weight.—Semi-finals: AC. Patterson (Andover) beat AC. Dramer (Halton) on points. AC. Preston (Kenley) knocked out AC. Mutch (Shrewsbury) in the first round. Final: Preston beat Patterson on points.

Welter-weight.—Semi-final: AC. Forman (Halton) knocked out AC. McCann (Northolt) in the first round. Final: AC. Forman (Halton) knocked out AC. Harper (Manston) in the first round.

Middle-weight.—Semi-finals: AC. Rowse (Kenley) beat AC. Wat (Henlow) on points. AC. Lewis (Andover) knocked out L.A.C. Evans (Northolt) in the second round. Final: Rowse beat Lewis on points.

Light-heavy-weight.—Semi-finals: AC. Donovan (Halton) knocked out AC. McFarlane (Shrewsbury) in the second round. AC. Walters (Kenley) knocked out AC. Nash (Northolt) in the first round. Final: Donovan beat Walters on points.

Catch-weight.—Final: AC. Rider (Lee-on-Solent) beat AC. Clam (Northolt) on points.

Rugby Football.

WOOLWICH v. CRANWELL.—This match was played at Woolwich on Dec. 3, and resulted in a win for Woolwich by 5 goals and 5 tries (40 points) to nothing. The deciding factor in the game was the superiority of the Woolwich backs. Their handling was practically faultless. The Air Force forwards, led by G. R. Beamish, held their own in the scrum and in the open controlled a difficult ball with accuracy, but the team was hopelessly outplayed behind the scrum.

The S.A.B.C. 1924-25.

The Society of British Aircraft Constructors, Ltd., notified the fact that the following officials have been elected for the year 1924-25:—

Chairman: Mr. T. O. M. Sopwith, C.B.E., of the H. G. Hawker Engineering Co., Ltd.

Vice-Chairman: Captain P. D. Acland, of Vickers, Ltd., and Mr. H. T. Vane, C.B.E., of D. Napier and Son, Ltd.

Honorary Treasurer: Squadron Commander James Broadbent R.N., of the Supermarine Aviation Works, Ltd.

The Committee of Management have expressed to Mr. C. R. Fairey, M.B.E. (Fairey Aviation Co., Ltd.), their appreciation of his work as Chairman of the Society for the last two years and of the many services he has rendered to the industry during that period.

The Committee have recorded also their thanks for an appreciation of the work of Capt. P. D. Acland, who has been for some time Vice-Chairman of the Society.

All those who had to do with aviation in its early days will be delighted to learn of Mr. Sopwith's election as Chairman of the representative body of the Aircraft Industry. Mr. Sopwith is truly one of the pioneers of aviation for he began his career as a pilot on a Howard Wright monoplane in 1907 when, as a well-to-do young man, he devoted his wealth to the progress of aviation instead of wasting it on riotous living. Thereafter he acquired a Howard Wright biplane and

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We exhibit besides our two-seater reconnaissance machine, fitted with Jupiter aircooled radial engine, a model of our new 3-engined commercial aircraft. Both machines are to the designs of Mr. Frederick Koolhoven, A.F.R.Ae.S., M.I.Ae.E., M.S.A.E., who was responsible for so many successful British designs.

We are certain that you will find our machines and conditions better than any, so it will be as much your advantage as ours, to get in touch with us.

PARIS
STAND
45.

PARIS
STAND
45.

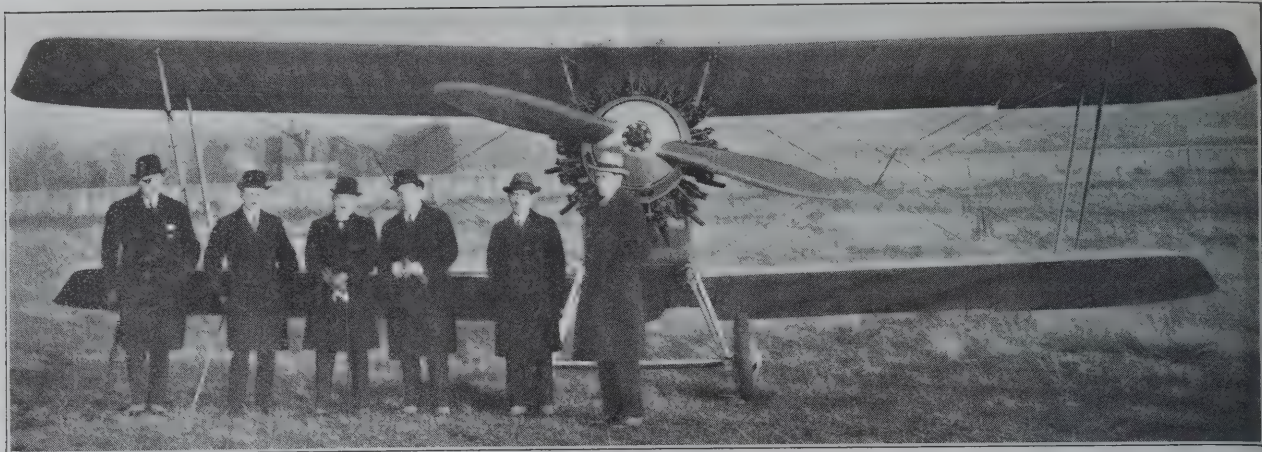
1910

1925

I

15 YEARS' AIRCRAFT DESIGNING EXPERIENCE ARE BEHIND
KOOLHOVEN AEROPLANES.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



THE A.D.C.'s LATEST.—A photograph taken at Croydon Aerodrome outside the sheds of the Aircraft Disposal Company, Ltd. The machine is the new Martinsyde A.D.C.1 and standing in front of it are (from left to right) Major J. Stewart (Sales Manager of the A.D.C.), Lt.-Col. M. O. Darby (Managing Director), Capt. T. Toyoda (Japanese Naval Attaché), Capt. Cortijo (of the Spanish Royal Naval Commission), Lieut.-Cmdr. Kato (of the Imperial Japanese Navy), and Capt. Square (Representative of the A.D.C. in Spain).

which he made a tour in the United States giving exhibitions of flying which enthused the Americans.

Mr. Sopwith established soon afterwards, at an old skating rink in Kingston, the Sopwith Aviation Co., Ltd., of which his sister, Miss May Sopwith, and Mr. R. O. Carey were directors. The Works Manager was Mr. Frederick Sigrist who hitherto had been Mr. Sopwith's private chief engineer. During the war the Sopwith Co. led the World in the production of fighting aircraft as differentiated from the reconnaissance and bombing types. It was only because of official hindrance that the R.F.C. in the Field were not permanently in front of the enemy in the production of such craft, for the Sopwith designs were always ahead.

The subsequent history of the Sopwith Co. (which paid twenty shillings in the pound after being forced into liquidation owing to Government demands for excess profit duty) and of the establishment of the H. G. Hawker Engineering Co., Ltd., which remains to-day as the memorial to one of our best pilots, is fairly general knowledge. After all the work he has done in the past fourteen years for British Aviation it is indeed good to see Mr. Sopwith the representative head of the Industry whose progress he has done so much to help in the past.

Capt. Acland, Mr. Vane and Sq. Comm. Bird have all done excellent work for the Aircraft Industry in general and for the S.B.A.C. in particular. It is an excellent thing that Mr. Vane, representing as he does one of the greatest internal combustion engineering firms in the country, should be a Vice-Chairman.

On the whole the offices seem to be very well divided. Mr. Sopwith represents those firms which are aircraft constructors pure and simple. Capt. Acland represents a great armament firm which is a member of what is commonly known as the Armament Ring. Mr. Vane represents the Automobile Industry. And Squad. Comm. Bird represents that section of the aircraft firms which is primarily concerned with seaplane work.

The thanks of the whole aeronautical community are certainly due to Mr. C. R. Fairey for his work during the two years in which he has been Chairman of the Society. There is an old saying among horse-racing people and athletes that "A good big 'un is always better than a good little 'un, but the trouble is to find a good big 'un. Mr. Fairey has emphatically proved himself to be of the desired type.

Mentally he is as big as he is physically, and his far-sighted outlook both in aeronautical politics and on the technical side has done very much to place the British Aircraft Industry in the happy position which it occupies to-day as a paying commercial proposition for the proprietors of those firms which form the S.B.A.C. The amount of work which he did as Chairman was enormous even without considering the amount of work he had to do as the Managing Director and Technical Chief of his own firm at a time when it probably had more orders in hand than any one firm among English-speaking constructors. One feels sure that everybody will wish him as a reward of his public services continued success in his private capacity.

On this auspicious occasion perhaps one may add that the Society owes much of its present happy state to the indefatigable work of its Secretary, Mr. Charles V. Allen, whose tact and perspicacity are as remarkable as his legal knowledge.

Altogether the S.B.A.C. seems to be peculiarly happy in its officials. One wishes it well in the coming year.—C. G. G.

A British Airship Venture.

A new firm has recently been registered under the name of Air Venturers, Ltd., with offices at 54, New Broad Street, E.C. The members of the firm are the sole agents for Zeppelin rigid airships in the British Dominions, with the exception of Canada, where the Goodyear Zeppelin Company, of the U.S.A., have equal rights. The firm are also sole representatives of the Parseval Company who now make both semi-rigid and non-rigid airships.

The Directors of Air Venturers, Ltd., are nearly all pioneers of British aeronautics. The moving spirit is Commander Boothby, late R.N., who was concerned with building the Navy's very first airship at Barrow-in-Furness in 1908, the ill-fated ship which was commonly known as the "Mayfly." Commander Boothby worked on airships right through the War and his knowledge is both deep and wide.

Another director is Mr. H. Barber, who first acquired fame as the designer of the Valkyrie "tail-first" monoplane, the first of which were built by Mr. Howard Wright and Mr. W. O. Manning, the others being built at the Aeronautical Syndicate, Ltd., Works at Hendon. Mr. Barber since the War has been prominent in the insurance world and his particular interests in Air Venturers, Ltd., are concerned with the United States.

Another director is Mr. Robert Blackburn, one of the very first builders of aeroplanes in this country and now one of our most successful aircraft constructors. Mr. T. Gladstone, a very expert seaplane pilot, is also a director, as is Mr. G. F. Hannon, who was at Hendon and Pulham right through the War. Another director is Mr. Wilson Ward, who is managing director of Vallambrosia and other big interests in the East.

One of the company's most immediately useful assets appears to be Commander Boothby's patents for the use of hydrogen and heavy oil combined in airship engines. It will be remembered that Sir Trevor Dawson, of Vickers, Ltd., said in a recent speech that this system was to be adopted in the new commercial airships which are to be built by his firm.

The firm also has the patent rights in the anti-crash petrol tank for aircraft which did extremely well in the tests at Farnborough in 1922. This has been developed considerably beyond the crude stage which it had reached at the time of the Air Ministry tests.

The firm's activities include not only the selling and/or building of airships, but also the planning and erecting of airship stations and mooring masts and the organisation of airship routes.

With such a combination of experienced people the firm should have an excellent chance of success when success does come to airship ventures.

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WINNERS OF THE AERIAL DERBY, 1921-1922-1923.

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RECORD CLIMB OF 19,500 FT. IN 11 MINS. 34 SECS.

(Machine in each of above events fitted with Napier Lion engine.)

Illustrated Catalogue on application.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 11; Tuesday, 10; Wednesday, 12; Thursday, 7; Friday, 13; Saturday, 9; Sunday, 7.

IMPERIAL AIRWAYS, LTD.

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 44, passengers 135, freight 10 tons.

AIR UNION

Paris—London: Machines 16, passengers 24, freight 8 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 7, passengers 7.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 2, passengers 2.

Total number of trips by British machines: 44, carrying 135 passengers. Foreign machines: 25, carrying 33 passengers.

Comparative Figures:

For week ending Dec. 7:

Machines, 69; Passengers, 168; Crews, 85; Total personnel, 253.

Corresponding week, 1923:

Machines, 19; Passengers, 38; Crews, 27; Total personnel, 65.

Corresponding week, 1922:

Machines, 60; Passengers, 130; Crews, 116; Total personnel, 246.

Corresponding week, 1921:

Machines, 29; Passengers, 36; Crews, 49; Total personnel, 85.

Corresponding week, 1920:

Machines, 22; Passengers, 33; Crews, 28; Total personnel, 61.

Croydon Notes.

In spite of the bad weather of the past week the services are running well to schedule. Occasionally machines bound for Paris have had to land at Beauvais and on one occasion a member of an esteemed contemporary, *en route* for what the Editor would like to call the "Ship Show," was there deposited which accounted for his lateness of arrival. The staff of THE AEROPLANE merely travelled by an ordinary ship—and got there. Some day proper ground organisation will enable aircraft to compete on such occasions.

A glance at the weekly statistics will show how much more regular has been the service this year than last year and how more passengers are forthcoming than in previous years at this season. Furthermore there has never this season been less than fifteen tons of goods taken across in the week.

The three-engined Handley Page is running regularly and the night service in connection with this machine is still being discussed.

The kite balloon which visited Croydon for a few days recently to look at the lights has now returned to Kenley.

The Surrey Flying Services are still busy taking photographs. On Saturday Mr. Muir went to Epsom on the Avro in order to photograph a piece of land through which was a right of way which was being made the subject of legal action. The photograph of the country round this was required by the litigants.

Mr. Muir has been making a number of passenger flights recently and a few days ago a Princess booked a half-hour trip to see the Crystal Palace. She was given a "close-up" as the mist prevented a view at long range.

The Aircraft Disposal Company, Ltd., have been having demonstrations of the Martinsyde-A.D.C. during the week and among the visitors have been Japanese and Spanish officials.

The Latest D.H. Commercial Aeroplane.

A new commercial machine, the D.H.54 (Rolls-Royce Condor) is now under construction at the De Havilland Aircraft Company's works at Stag Lane Aerodrome, Edgware, to the order of the British Air Ministry. The machine is of tractor biplane form following the usual De Havilland lines.

Accommodation is provided for fourteen passengers in a large, light and airy cabin. The height of the cabin is ample for even the tallest ordinary man to stand upright. The gangway is of sufficient width to allow free movement in the whole length of the cabin.

Separate armchairs for passengers are arranged three abreast all facing forward, and each passenger has a wide field of view through safety glass windows. Special attention has been paid to the provision of adequate ventilation and heating arrangements.

The pilot and navigator are located forward of the main planes, and both have an excellent and uninterrupted view. Luggage is carried in a large hold located under the pilot's

cockpit, which is entirely separate from the cabin. The estimated top speed is 110 m.p.h., the cruising speed 100 m.p.h. and the landing speed is 52 m.p.h. The range under normal conditions is 4½ hours, or 450 miles.

The length is 51 feet, the span is 68 feet, and the height is 16 feet. The total weight fully loaded is 11,000 lbs.

The D.H. 54 will be fitted with the De Havilland automatic Variable Wing Camber Device which enables it to take off after a shorter run and reduces the length of run on landing by reason of the low flying speed which it permits the machine to maintain.

The fuselage is built on the rigid system of construction common to all D.H. types, which eliminates all bracing wires and ensures long life and accuracy of form. To facilitate storage or packing it is built in two halves which are secured together by bolts.

An interesting point is the oleo-rubber-in-compression undercarriage, which in the case of an unavoidable forced decent in water can be jettisoned. Dropping the undercarriage in this emergency reduces to a minimum the risk of overturning on alighting. It will be remembered that in tests made early this year with a D.H.18 at Felixstowe, the undercarriage caused the machine to trip and stick its nose into the water. The machine is so built that it will float for several hours without submerging. It is due for test next month.

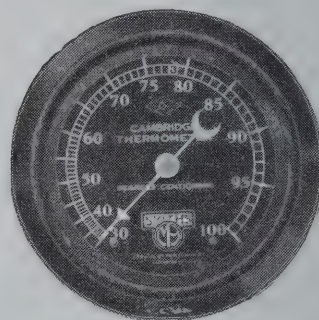
Sir Sefton Brancker's Tour.

Sir Sefton Brancker who is flying to India in a D.H.50 piloted by Mr. Alan J. Cobham arrived at Constantinople from Bucarest on Friday, Dec. 5.

He is at the moment detained at Constantinople with trouble of some kind, no particulars of which are available.

Instrument Chats

(No. 39.)



It is admitted that aero engines run best at a certain temperature; the Smith Radiator Thermometer enables the pilot to see at a glance the temperature of the water circulation. These instruments now read from 30° to 100° centigrade, and match the Smith Oil and Fuel Gauges in size and appearance. Full particulars of this and other Aviation Instruments free on request.

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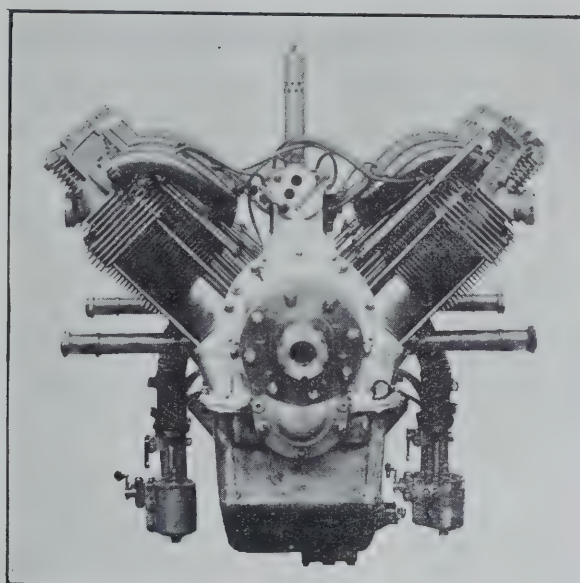
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Dr. Thurston on Aircraft Design.

The paper read by Dr. A. P. Thurston before the Institution of Aeronautical Engineers on Nov. 21, and entitled *Some Further Practical Points in the Structural Design of Aircraft*, was in essence a plea for the use of graphically tabulated statistics as a standard basis of comparison when considering the design of aircraft.

To illustrate his argument the lecturer showed curves indicating that for machines of from 1,000 to 20,000 lbs. total weight the percentages representing structure weight, power plant weight, useful load, etc., remained sensibly constant and suggested that any design which indicated a markedly different weight distribution might properly be regarded as suspect either of inadequate strength or of undue structural weight. He also claimed that this curve was an adequate answer to those who claimed that there was a limit to the size of aeroplanes dictated by a structure weight percentage increasing with increasing size of aeroplane.

Curves of tail plane volume over chord and of the failing load of fuselages, plotted against wing area were also accompanied by the suggestion that they should be used as a criterion of the sufficiency of tail plane provided and of the strength of the structure carrying that tail with a similar deduction that any design not falling close to the average curves of satisfactory machines in these respects could be regarded with suspicion.

It was further suggested that from average results of sand tests on aeroplane fuselages a general formula giving the crippling loads of fuselage members could be obtained which automatically took account of the strengthening effects of joints between members.

Finally curves of mechanical tests on samples of timber were shown. These indicated, among other points, the very variable qualities of timbers and particularly the effect on strength of the moisture content.

In the discussion which followed Messrs. Oswald, Sayers and Evans attacked the suggestions made on the ground that averaging aeroplane qualities was an entirely unsafe and on the whole a retrogressive basis for comparison and certainly not a method to be used in design.

Mr. W. O. Manning thought that the curves shown were in some respects unconvincing and said that the figures showing the fall in the strength of timber with increasing moisture content gave him cold shivers until he recollected that aeroplanes did not in practice fall to pieces after having been left out in a rainstorm.

Dr. Thurston, in reply, agreed that his method of comparing aeroplanes required to be used with great caution, but claimed that it did afford a method by which it was possible to judge whether progress was being made in design.

The Royal Aero Club.

On Christmas Day and Boxing Day, Dec. 25 and 26, 1924, Luncheons, Dinners and Teas will not be served in the Royal Aero Club, and the Bar will be closed. Breakfasts will only be served before midday to Members staying in the Club.

A Fairey Tale.

[The following has occurred irrepressibly as the result of a visit to "Poppy" at the Gaiety Theatre, and as the result of hearing how busy the Fairey Aviation Company, Ltd., is on orders and how much work Mr. Fairey himself does in his capacity of managing director and technical chief of his firm and how busy he was as Chairman of the S.B.A.C.]

What do you do Sunday?
What do you do Monday, Fairey?
What do you do Tuesday?
What do you do Wednesday, Fairey?
When'er I call you're hardly ever alone
You're engaged or you're out when'er I telephone.
What are the Hlds. for?
Whom do you make these for, Fairey?
How's your metal helix?
How does it walk with Felix, Fairey?
It's only on Sunday that you can be found
What do you do, Fairey, all week round?

(With apologies.—G. D.)

PERSONAL NOTICES.**DEATH.**

GAIN.—On Dec. 4, at Upavon, Wilts., as the result of a flying accident on Dec. 3, *Pt. Off. Douglas Elphinstone Gain*, Central Flying School, R.A.F.

Mr. Gain was gazetted *Pt. Off.*, R.A.F., on July 14, 1923, and posted to No. 2 F.T.S., Duxford. On July 14, 1924, he was posted to No. 3 Sqn. Mr. Gain was flying an Avro 504-K at the time of the accident.

MARRIAGE.

CHICK—COSGROVE.—On Dec. 5, at St. Edward's Church, Golden Green, Arthur Leslie, *Pt. Lt.*, R.A.F., eldest son of Mr. and Mrs. A. E. Chick, of Shenfield, Essex, to Angela Mary, eldest daughter of the late James Cosgrove, of Dumfries, and Mrs. Cosgrove, Maryhill Road, Glasgow.

BIRTHS.

HICHENS.—On Nov. 28, at Weymouth, to Xenia, the wife of *Pt. Off. Gerald Hichens*, *Pt. Off.*, R.A.F.—a son.

WARBURTON.—On Dec. 2, at Lime House, Cobham, Surrey, to the wife of *Pt. Lt. Peter Warburton*, R.A.F.—a son.



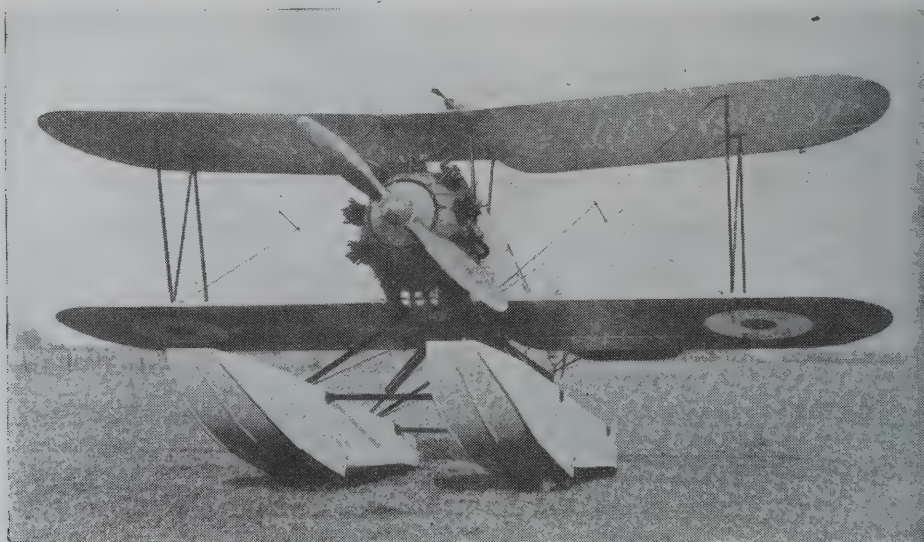
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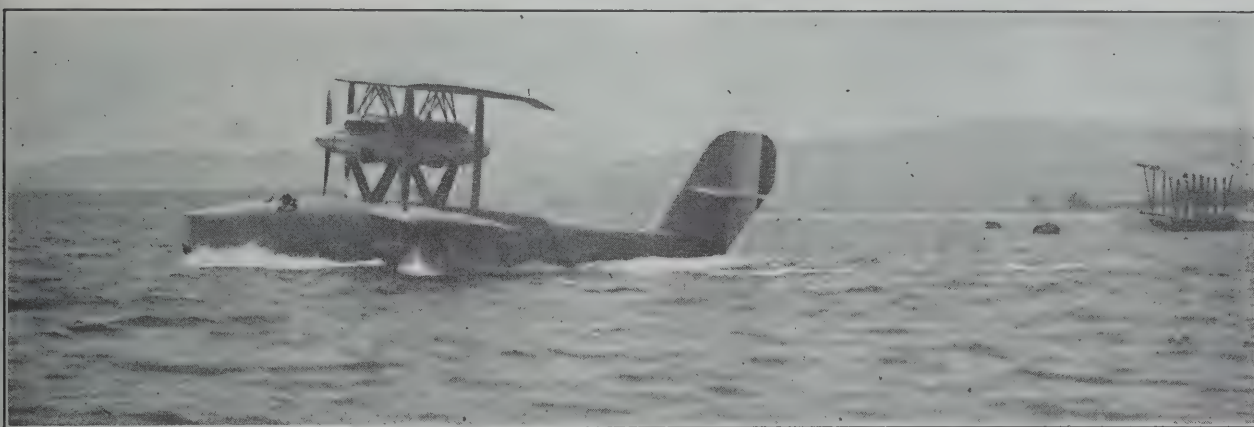
Edited by
C. G. Grey

Vol. XXVII. No. 25.

SIXPENCE WEEKLY.

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IN HER ELEMENT.



A FRENCH FLYING BOAT:—The C.A.M.S. type 33 B., with two 260 h.p. Hispano-Suiza engines in tandem.

A twin sister of this boat was in the Paris Aero Show.

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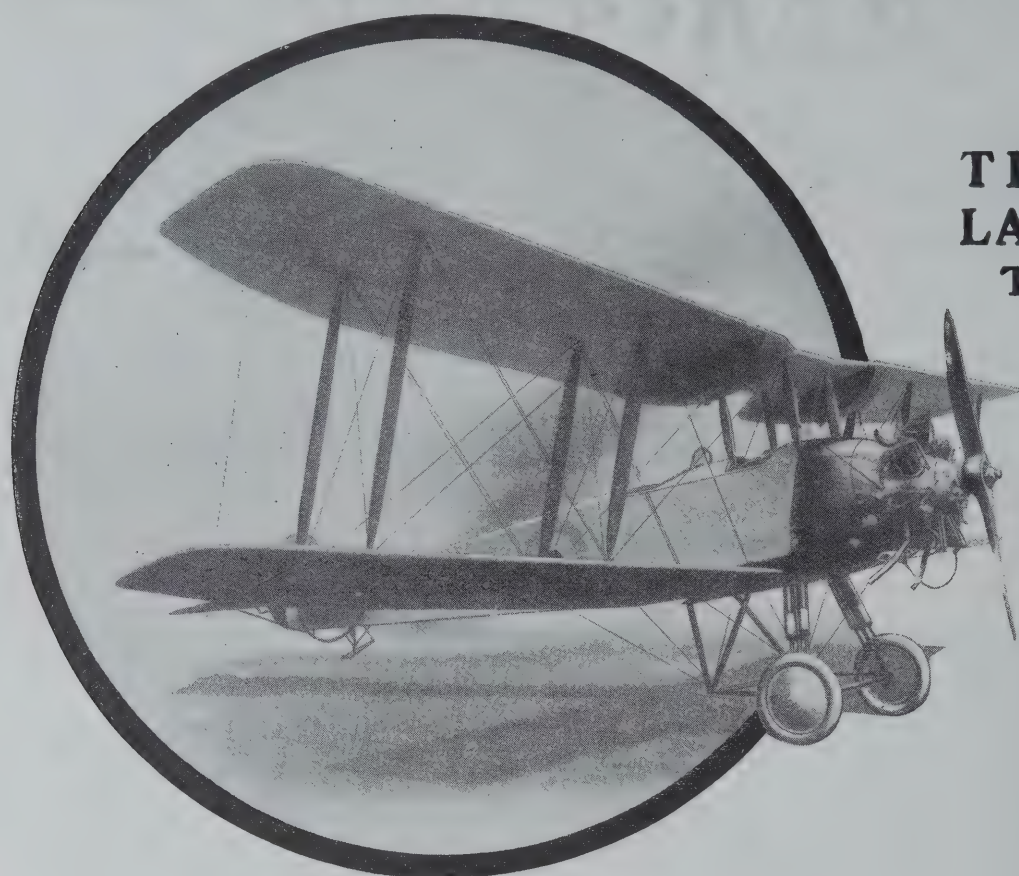
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In place of a rotary engine a Siddeley "Lynx" Radial Air-Cooled engine is fitted. Petrol consumption at full power is approximately 12 gallons per hour. An important feature however is that the machine can fly with the throttle only just open and a satisfactory cruising speed can be main-

tained at about quarter throttle, with a petrol consumption of not more than 7 gallons per hour.

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U.S.A., 1 Year, \$8 50c.

ON THE COMING-OF-AGE OF AVIATION.

On this day twenty-one years ago, that is to say on Dec. 17, 1903, Mr. Orville Wright made the first sustained flight on a power-driven aeroplane. It is true that the flight only lasted for twelve seconds and that the machine was launched into the air by a catapult apparatus. But those twelve seconds were enough for the effect of the catapult to be absorbed and to show that the apparatus was actually sustaining itself by its own power.

From twelve seconds to twelve minutes and thence to twelve hours of sustained flight was a natural progression, and further extension of the period which an aeroplane can be sustained in the air is only a matter of the machine's capacity for carrying fuel.

Claims have been made that the first aeroplane actually to fly was the *Avion*, a steam-driven twin-screw, tractor monoplane designed and built by Mr. Clément Ader in France. It seems quite probable that the *Avion*, whose name incidentally has been adopted as the official French word for an aeroplane, did actually hop off the ground under its own power in 1893. And so it may be fairly regarded as one of the great precursors of the modern aeroplane, but certainly it did not maintain itself in flight as did the first Wright

How the Wright biplane was produced under difficult circumstances by the Wright brothers, Orville and Wilbur, as the result of experiments with gliders from the tops of sand-hills on the coast of North Carolina, and how they built their own first 12 h.p. engine in their own cycle shop at Dayton, Ohio, can be read in any history of aviation.

Unhappily Wilbur Wright, who was the moving spirit of the partnership, died of typhoid fever on May 20, 1912. Long before his death the Wright aeroplanes as designed by him and his brother had ceased to contribute towards the progress of aviation. It will always be to the credit of the Wright Brothers in History that they made the first aeroplane which flew under its own power. But like so many pioneers their work arrived at a dead end. The very characteristic of obstinate determination which makes pioneers succeed in a task which superior people had proved to be impossible prevents their minds from expanding and grasping new ideas.

THE NEW PIONEERS.

After the first success of the Wright Brothers came a fresh group of workers for Aviation who really contributed to progress. In the United States Glenn Curtiss developed aircraft which had a performance much superior to those of the Wright Brothers and to him definitely may be assigned the credit for having designed and built the first aircraft which ever flew off and onto water. There is much interest in considering that Mr. Orville Wright, the first man in the World to fly, is still alive and taking a useful philosophic

interest in aviation, and that Glenn Curtiss, who really made American aviation in its early days, is still very actively employed in business though still interested in aviation, and that the firm which he founded can fairly claim to lead the World at the moment in its own particular type of aeroplane.

In Europe the pioneers were Ellehammer the Dane and Santos-Dumont the Brazilian who almost at the same time in the autumn of 1906 made long hops.

THE GREAT YEARS.

The great years in the development of aviation were 1907, 1908 and 1909. In 1907 Mr. A. V. Roe built and flew for short distances a triplane from which has been developed the famous Avro biplanes of to-day. M. Blériot in 1907 built in France a monoplane which flew in 1908 and was the forerunner of the famous Blériots and Spads of to-day. The Voisin brothers built in 1907 a box-kite biplane which was flown by M. Henry Farman in 1908 and from it rose the great Farman firm. And here again it is interesting to note that Mr. A. V. Roe, M. Louis Blériot and M. Henry Farman are all still actively employed in the manufacture of aircraft.

In those years also the late S. F. Cody built and flew his biplane at Aldershot.

It was in 1909 that the first aircraft boom began. The invention of the Gnome rotary engine in France by the Séguin Brothers produced a power-plant so phenomenally light that it was said that a tea-tray could be made to fly with it. Actually the Gnome engine, because of this very quality, set back to a considerable extent the design of aeroplanes, for with it all sorts of flying machines of the box-kite type were persuaded into the air, whereas if they had been tied to the heavier motor-car type of engine we should have been compelled to develop efficient aeroplanes.

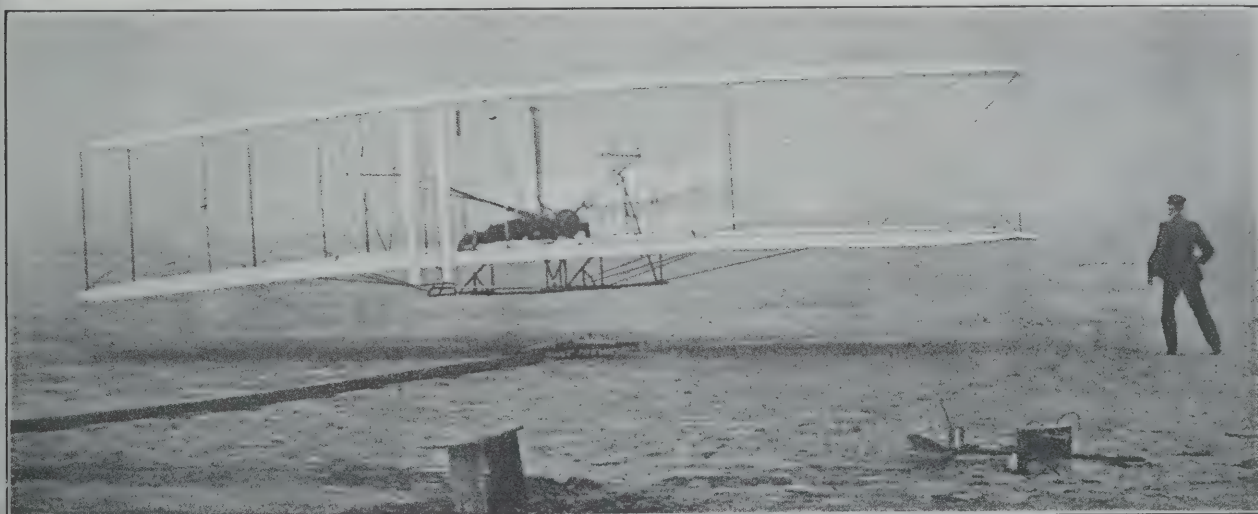
That in fact is what happened in Germany where the Benz and Mercedes Company produced heavy but very reliable engines and the German designers were forced to make quite reasonably efficient aeroplanes to lift those engines. A study of the pictures of historical aeroplanes produced between 1909 and the outbreak of war in 1914, such as may be found in back numbers of *All the World's Aircraft*, show quite definitely how nearly the early German aeroplanes of those years approximate in outline to our most modern machines.

Nevertheless the Gnome engine, by getting all sorts of aeroplanes into the air, allowed us to gain air experience and so contributed enormously to that long-drawn war which we are still waging for the Conquest of the Air.

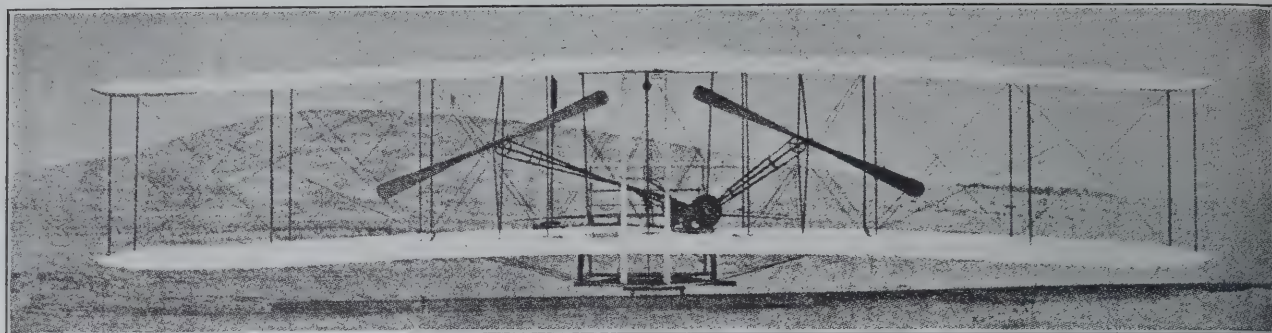
TWENTY-ONE YEARS' PROGRESS.

Some idea of the progress which has been made in these twenty-one years may be gathered from a comparison of performance figures.

The speed of that original Wright machine was approxi-



THE FIRST HUMAN FLIGHT.—Mr. Orville Wright leaving the catapult rail on Dec. 17, 1903.



THE FIRST HUMAN FLIGHT.—The twin-screw biplane on which Mr. Orville Wright flew on Dec. 17, 1903.

mately thirty miles an hour. To-day the speed record put up by the Ferbois biplane is 278 miles an hour.

The distance travelled in that first flight was about 850 feet. The longest non-stop flight yet made was that across the Continent of America, a distance of over 3,000 miles.

The duration record of that first Wright machine, which was made by Mr. Wilbur Wright after his brother Orville had made the first flight, was a matter of 59 seconds. The record non-stop flight to-day is 38 hours.

The height reached by that first Wright machine in 1903 was somewhere about 15 feet. The height record of to-day is close upon 40,000 feet, or roughly $7\frac{1}{2}$ miles vertically above the earth.

Thanks to such purely British products as the Rolls-Royce Eagle type engines the Atlantic has been flown in a non-stop flight and Australia and South Africa have been reached by air from England.

A flying boat of the United States Navy was the first aircraft to cross the Atlantic under its own power. Both British and foreign aircraft have flown with Napier Lions to Japan and other places in the Far East. India has been reached many times by air. And four gallant American aviators on American aircraft have flown completely round the Northern Hemisphere.

During the War 1914-18 aircraft contributed enormously to the operations of the belligerent Armies and they might have contributed equally to naval operations if the various Navies concerned had appreciated the possibilities of aircraft. But it is well even now not to overrate what aircraft did in that war. They contributed very largely to the success of the Allies but they did not actually win the War.

Also it is well to recognise the fact that the War did not develop efficient aircraft. In the War we worked for performance at all costs and we got that performance by piling on more and more power and not by producing aircraft which were aerodynamically efficient.

EFFICIENCY.

It is only since the War that we have begun to seek for efficiency. It may be that the comparatively useless light aeroplanes which have been produced during the past three years will contribute more to aeronautical progress than did all the war flying. They have at any rate demonstrated that one man can fly with something like 10 horse power.

Thus they may turn the minds of our designers in the direction of believing that 10 h.p. per passenger in commercial aeroplanes is an adequate allowance. Even if we only reach the stage of carrying eight people with 100 h.p. or so we shall have progressed a good deal beyond the present stage of needing something like 500 horse power to carry eight or ten people.

A PROMISING YOUNGSTER.

Nevertheless these twenty-one years have shown quite considerable progress and on coming of age Aviation may be regarded as quite a promising youngster. Like human beings at that age it is a little too sure that it is the only thing that matters in the World. And it is a little bit too inclined to think that it knows all about itself and everything else. The Aeronautical Community, considered as a single entity, still suffers from being selfish and self-centred and self-complacent, as is the custom of the very young.

There is still much to be done in the development of Aviation. And our self-satisfied designers and organisers and so forth will do well to look ahead to the future career of aviation, much as the young man who has just attained his majority will, if he be wise, look ahead to his own future.

We need aircraft which are as safe to fly as a motor-car is to drive. They must depend on the skill of the pilot only for their direction. They must be non-diving and self-landing.

We need airways organised according to the motto of Colonel Paul Henderson, the United States Assistant Postmaster-General, who has said that "An airway is on the ground and not in the air."

We need to be able, as already suggested, to carry very much bigger loads with very much less horse power.

We need very much cheaper engines and cheaper methods of construction before we are able to produce commercial aeroplanes which shall be a commercial proposition.

These things will all come in due course. Everything is leading towards them. Most of them are so well within sight that one might prophesy a boom in commercial aviation within the next five years but for the fact that it will probably be set back by the outbreak of the real World War.

Yet it is even possible that such a war may be fought in such places that commercial aviation may develop simultaneously with the War itself. The use of mechanical transport in the War 1914-18 did much to develop the motor-truck. And it is possible that air transport of material from England to Central Europe in the Great War may develop commercial aeroplanes.

New industries and new methods of transport have a curious habit of developing at a rate very similar to that of the human being. Therefore there is a fair prospect that in the next twenty-one years those of us who live may see aviation develop to full maturity, much as railway transport developed between 1840 and 1860. We may see in all civilised countries a network of airways with proper ground organisation and using passenger machines which are as safe in the air as is a railway train on its track. May it be so.—C. G. G.



PROGRESS?—A streamlined German biplane of 1914, just before the outbreak of war.



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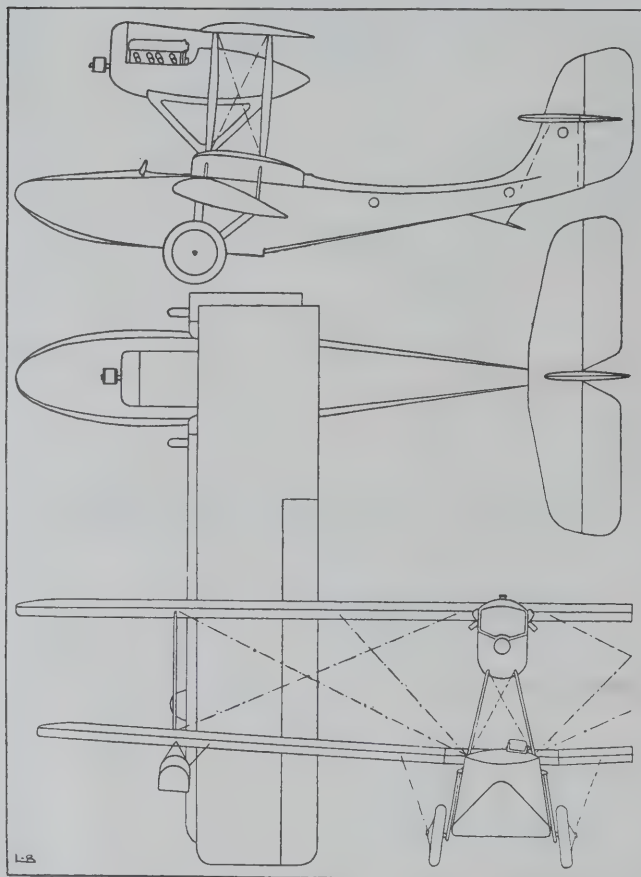
THE PARIS AERO SHOW.

THE EXHIBITS.—(Continued.)

F.B.A. (HYDRAVIONS SCHRECK.) Argenteuil.

The F.B.A.19 is an amphibian flying-boat fitted with the 350 h.p. Hispano-Suiza engine. The hull is of the usual three-ply F.B.A. type, with a single deep step and a somewhat swept-up tail. The undercarriage consists of a pair of V struts, one on each side hinged at the top to the side of the hull, and when in use lying flat alongside the hull. When in this position a splined socket on the base of the Vee receives a stud with an undercut splined head which is rotated from the pilot's seat and serves to lock the chassis in position. The undercarriage is pulled up when not in use by cables passing over pulleys in the interior of the bottom wing and lies flat against the wing when drawn up.

The wings are a single bay, nearly equal span biplane.



Outline General Arrangement of the F.B.A.19.

The engine, fuel tanks, etc., are carried in a well streamlined nacelle projecting well forward of the wings.

The pilot's cockpit is in front of the wings and a second twin-seated cockpit is just behind the wings. The machine can be equipped either for reconnaissance and photography or for civilian purposes.

The type 19 is marked by particularly good climbing qualities, and has a ceiling of about 20,000 ft.

SPECIFICATION OF THE F.B.A.19.

Span ...	14.1 m. (46 ft. 3 in.)	Engine	Hispano-Suiza
Length	9.45 m. (31 ft.)		350 h.p.
Height ...	3.8 m. (12 ft. 5½ in.)	Wing loading	42 kg./m²
Wing area	45.7 m²		(8.4 lbs./sq. ft.)
	(505 sq. ft.)	Power loading ...	5.5 kg./h.p.
Weight empty	1,350 kg.		(12 lbs./h.p.)
	(2,970 lbs.)	Max. speed	184 km/h.
Weight loaded	1,920 lbs.		(114 m.p.h.)
	(4,225 lbs.)	Climb to 2,000 m.	(6,560 ft.)
			10 m/16 s

FOKKER. (NEDERLANDSCHE VLIEGTUIGEN FABRIEK.) Ronkin 84, Amsterdam.

Mr. Anthony Fokker, at present in the United States, on believes, shows only one example of his many types. This is the D.XIII, the new high-speed single-seat fighter with Napier Lion engine. Like all Mr. Fokker's designs it is cleaned up that it is plain to the verge of homeliness and looks what the Americans call ordinary. Yet it is full of brains.

It is in effect a thick-wing cantilever monoplane with small supplementary wing stuck out on each side of the bottom of the fuselage. The tip of each little lower plane is connected to the big upper plane by a Vee strut, but not to take compression. It is there to prevent the wing from twisting.

The fuselage, as usual, is of welded steel tube, such a would cause heart-failure in the technical departments of the Air Ministry, though it seems to hold together all over the World, and to do equally well in respectable kingdoms such as Spain, in self-respecting Republics such as the United States, and in States of militant Bolshevism such as Soviet Russia, neither respectability can rust nor revolution corrupt its infinite lack of variety. That welding is always the same and it always seems to stay put.

One is beginning to think that we must revise our ideas on welded tubing, especially since that quaint incident, when a Fokker test-pilot complained of lack of tail control and Mr. Fokker welded three feet of extra length into the fuselage and had the machine flying in a little over an hour.

On this stand is a replica (or perhaps the original recovered) of the old "automatic stability" monoplane of 1910-11-12 or thereabouts with which Mr. Fokker made his name in Germany. It flew and it did not capsize, but it was almost uncontrollable.

During the War 1914-18, when the up-to-date Fokkers (the first of which was admittedly copied from the French Morane monoplane) were shooting down our poor old B.E.s and F.E.s, some people used to abuse the War Office and Admiralty because Mr. Fokker had offered his machine to England before



The Fokker D.XIII (Napier Lion engine).

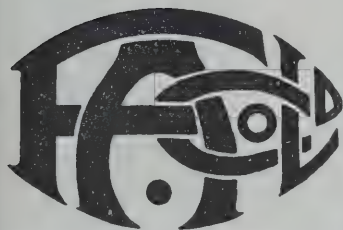
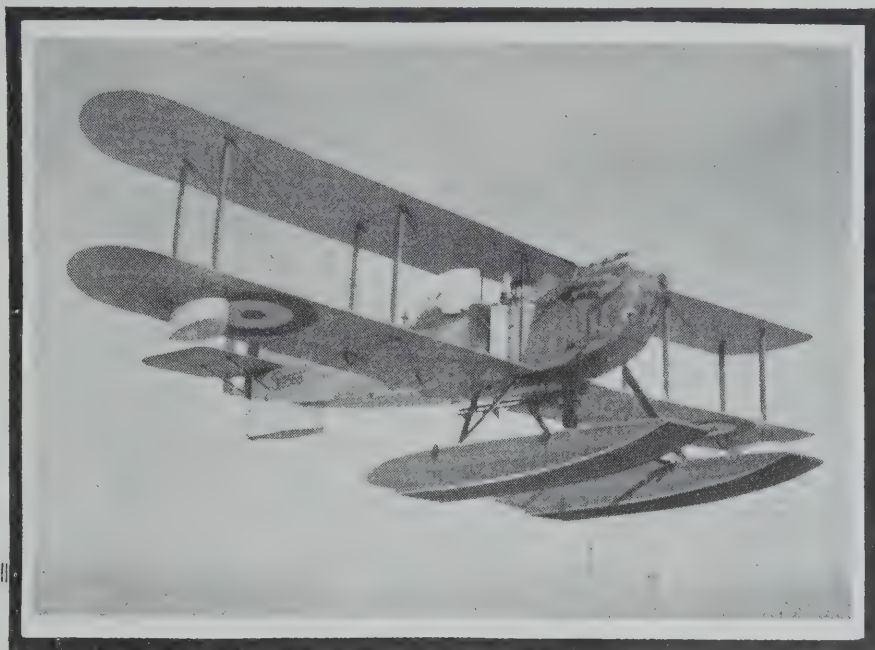
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A FAIREY SERIES III SEA-
PLANE (450 h.p. Napier engine)
in flight over the Mediterranean
near Malta.

THE FAIREY IIID SEAPLANE.

THE FAIREY SERIES III SEAPLANE is the standard general service seaplane in the Royal Air Force and is also employed by the Royal Australian Air Force, the Swedish and Portuguese Naval Air Services. It was on a machine of the Series III type, but fitted with larger wings, floats, and special fuel tanks that Admiral Gago Coutinho and Capt. Sacadura Cabral made their flight from Lisbon to St. Paul's Rocks in 1922. It was on a standard Series III that they completed their flight to South America after the loss of the special machine. In April and May of this year a Fairey Series III Seaplane fitted with a 360 h.p. Rolls-Royce engine and piloted by Wing Commander S. J. Goble, D.S.O., O.B.E., D.S.C., and F/O McIntyre, O.B.E., A.F.C., of the Royal Australian Air Force flew round the entire coastline of Australia, a distance of 8,568 miles in 90 flying hours, a flight which may be regarded as one of the most remarkable flights yet made by a Service machine on Service duties.

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fore the war and had been turned down. The people who went to Germany to see the machine were one Lieut. L'Estrange Malone, R.N., and (one believes) Lieut. Seddon, R.N. They flew in it as passengers and refused it. Having now seen the machine one feels it one's duty to express the Nation's thanks to them. But it is a pity all the same that we did not adopt Anthony Fokker, if only to prevent him from making all those machines in Germany. Probably if he had joined us he would have been overwhelmed by English commercial stupidity just as was his brilliant countryman, Mr. Koolhoven, but at worst he would not have built Germany's war machines, and he would not be to-day building war machines for the Bolsheviks.

Still, what with the Cross-America flight and the Brussels-Tokio flight and the Amsterdam-Batavia flight it is fairly evident that Mr. Fokker has contributed very much to aeronautical progress besides making a fortune himself.—C. G. G.

THE FOKKER D.XIII.

Span	11.53 m. (39 ft.)	Engine	450 h.p. Napier Lion
Length	7.3 m. (24 ft.)	Wing loading ...	71 kg./m ² . (14.5 lbs./sq. ft.)
Height ...	2.9 m. (9 ft. 7 in.)	Power loading ...	8 kg./h.p. (7.6 lbs./h.p.)
Wing area	21.8 m ² . (236 sq. ft.)	Max. speed	135 km.h. (161 m.p.h.)
Weight empty ...	1,120 kg. (2,470 lbs.)	Climb to 5,000 m. (16,400 ft.)	12 mins.
Weight loaded ...	1,550 kg. (3,420 lbs.)		

AVIONS HANRIOT, 194, Boulevard Bineau, Neuilly-sur-Seine.

M. Hanriot is one of the pioneers of Aviation. One remembers him somewhere in the dark ages of 1909-1910, when his son Marcel was the child-prodigy among aviators. He has built aeroplanes of sorts ever since, all quite good and none of them particularly startling. The present exhibit maintains his reputation.

The H.19 is called a Biplace de Perfectionnement, which is otherwise a two-seater advanced training machine. It is a quite conventionally neat biplane, barring a very ugly radiator cocked up on top of the 180 h.p. Hispano-Suiza engine, apparently, as one humorist remarked, to keep the pilot's face warm. Anyhow it destroys what would otherwise be a neat streamlined cowl. The wings are of the single-bay type with ugly sawed-off ends and with duralumin struts braced by twin cables streamlined by fitches and fabric. The undercarriage is of streamline tube without wire bracing.

The H.31 is a rather interesting biplane Monoplace de Chasse, or pursuit ship, built entirely of metal—mostly duralumin. It seems to be a development of the skeleton shown at the last Paris Aero Show two years ago. It has a 500 h.p.

C.M.18 Salmson water-cooled radial engine, with a big ugly radiator underneath, which must knock off several miles an hour. The upper plane, which has a pronounced overhang, is split in the middle to give the pilot a better view, but whether the consequent loss of lift through leakage is paid for by the view seems doubtful. There seem better ways of getting it. The wings have single I struts raked outwards and upwards.

The H.34 is a parasol monoplane described as a Biplace d'Ecole or a Triplace de Tourisme. The engine is a Salmson A.C.9 (air-cooled) of 120 h.p. There is rather a neat oleo undercarriage. Altogether it strikes one as quite a nice little school machine.—C. G. G.

THE HANRIOT H.D.19.

Span ...	9.19 m. (30 ft. 2 in.)	Engine	180 h.p. Hispano-Suiza.
Length...	7.20 m. (23 ft. 7 in.)	Wing loading ...	34.5 kg./m ² . (7 lbs./sq. ft.)
Wing area	26.7 m ² . (297 sq. ft.)	Power loading...	5.27 kg./h.p. (11.6 lbs./h.p.)
Weight empty	660 kg. (1,452 lbs.)	Max. speed	170 km.h. (105 m.p.h.)
Weight loaded	950 kg. (2,090 lbs.)	Ceiling...	5,500 m. (18,000 ft.)

THE HANRIOT H.31.C.I.

Span ...	11.0 m. (36 ft. 1 in.)	Wing loading ...	47.4 kg./m ² . (9.7 lbs./sq. ft.)
Length...	7.58 m. (24 ft. 10 in.)	Power loading ...	8 kg./h.p. (7 lbs./h.p.)
Height ...	3.62 m. (11 ft. 9 in.)	Max. speed	250 km.h. (155 m.p.h.)
Wing area	34 m ² . (366 sq. ft.)	Climb to 5,000 m. (16,400 ft.)	13 m. 30 s.
Weight loaded	1,610 kg. (3,542 lbs.)	Ceiling...	8,000 m. (26,000 ft.)
Engine ...	500 h.p. Salmson		

THE HANRIOT H.D.34.

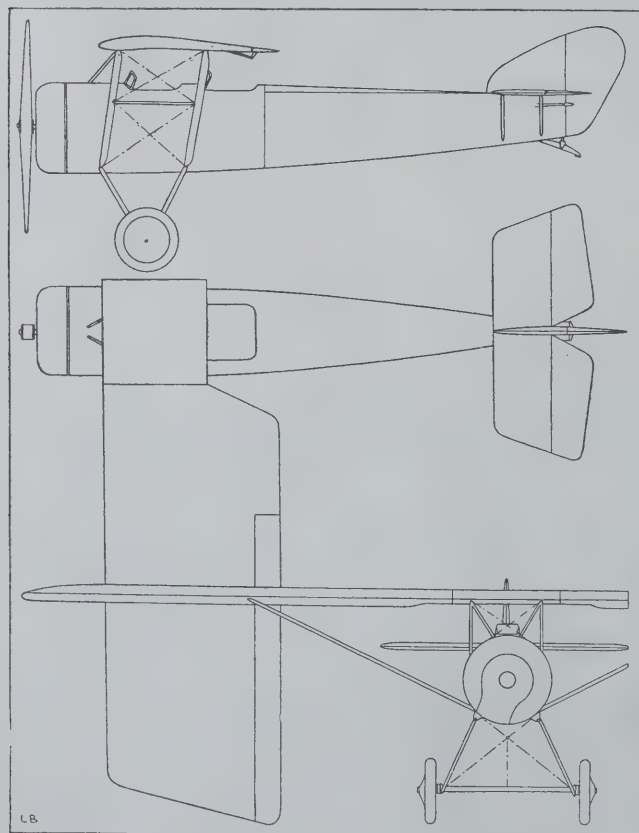
Span ...	11.4 m. (37 ft. 5 in.)	Engine ...	80 h.p. Le Rhône
Length...	6.96 m. (22 ft. 10 in.)	Wing loading ...	29 kg./m ² . (6 lbs./sq. ft.)
Wing area	22 m ² . (237 sq. ft.)	Power loading ...	8 kg./h.p. (17.6 lbs./h.p.)
Weight empty	396 kg. (872 lbs.)	Max. speed	135 km.h. (84 m.p.h.)
Weight loaded	646 kg. (1,425 lbs.)	Ceiling...	4,500 m. (15,000 ft.)

KOOLHOVEN. (NATIONALE VliegTUig Industrie.) 21, Prinsessegracht, The Hague.

Mr. Frederick Koolhoven (to give him his proper title and name as a British subject) shows the very latest development of the F.K.31. It is only fair to say that it is the chief attraction of the show for those who wish to see all that is of the most modern in military two-seaters.

When Mr. Koolhoven exhibited the first of this type two years ago the performance figures were calculated. This time the machine has flown many hours and the figures are those actually recorded in the air.

The machine is made in three types, each with a Bristol Jupiter engine, one as an Avion de Chasse with petrol for 2 hours, one as an Avion de Combat with petrol for 4

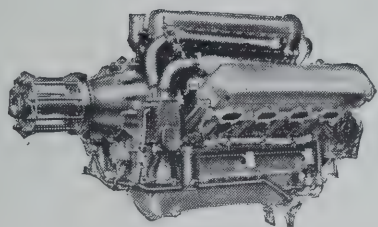


Outline General Arrangement of the Hanriot 34.



The F.K.31 (Jupiter engine). The most interesting two-seater in the Show.





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*Commenting upon the French Aero Exhibition,
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“This year Fokker pays Great Britain the graceful tribute of fitting his machine with a 450 h.p. Napier ‘Lion’ engine, a type that is now being used to a preponderating extent in our own Royal Air Force, and that, for its power, is undoubtedly without equal in the world.”

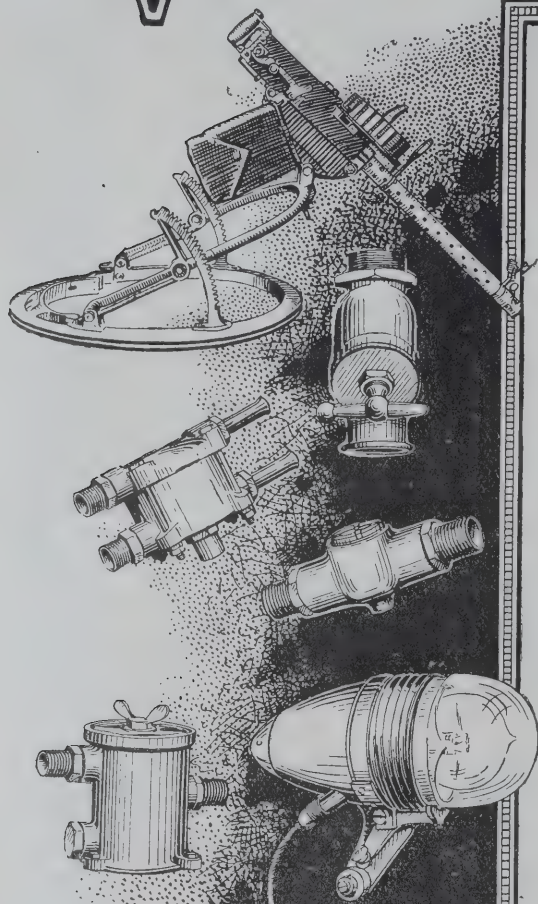
Following the lead of the British Air Ministry, the majority of machines built by the Fokker Company are fitted with the 450 h.p. Napier aero engine.

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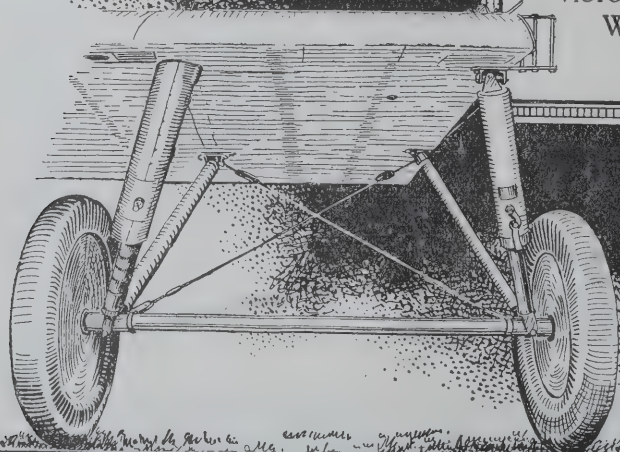
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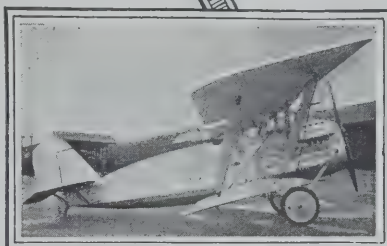


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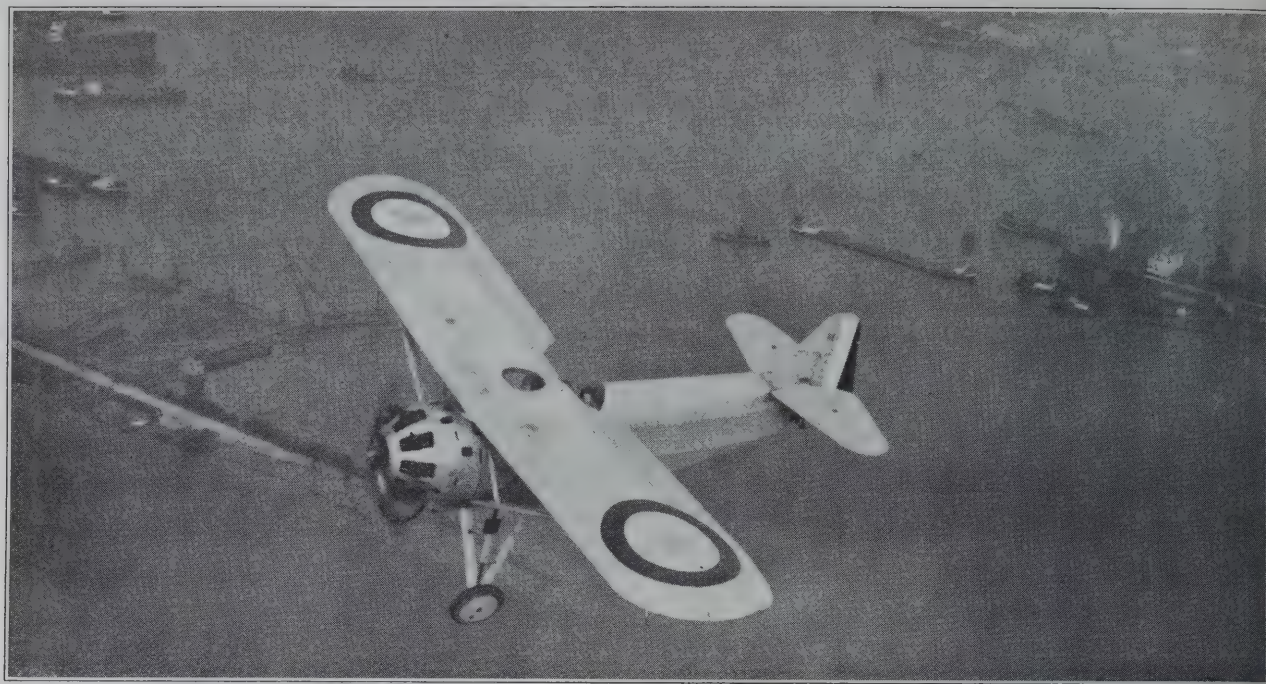


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The Koolhoven F.K.31 (Jupiter engine 420 h.p.) flying over the docks at Rotterdam.

hours, and one as an Avion de Corps d'Armée with petrol for 6 hours. Each carries a pilot and gunner-observer, with four machine-guns, two fixed forward, and twin guns on the gun-ring aft. The corps-reconnaissance machine carries in addition photographic apparatus, a fifth gun to fire downwards, wireless apparatus, and extra ammunition for the long cruise. Thus equipped the military load of the chaser (or pursuit ship) is 285 kilos; that of the fighter is 314 kilos; and of the corps-reconnaissance machine 395 kilos—which is approximately 900 lbs., a very good load for 400 h.p.

The performance figures are as follows:—

Chaser,—maximum speed 142 m.p.h.r., slow speed 51 m.p.h.r., landing speed 42 m.p.h.r., climb to 1,000 metres (3,250 ft.) 2 mins., to 5,000 metres (16,250 ft.) 26 mins.

Fighter,—maximum 138 m.p.h.r., minimum 54 m.p.h.r., landing 45 m.p.h.r., to 1,000 metres 2½ mins., to 3,000 metres 27 mins.

Corps-reconnaissance,—maximum 130 m.p.h.r., minimum 55 m.p.h.r., landing 54 m.p.h.r., to 1,000 metres 3½ mins., to 5,000 metres 34 mins.

The fuselage is built entirely of steel, either sheet or tubing, and aluminium alloys are only used for cowling and stiffening, not in places where direct stresses are taken. The machine is a braced monoplane with N struts from the wings to the bottom of the fuselage. The wings are of wood covered with fabric in the ordinary way, and are fitted with flaps for slow landing and quick lifting.

The whole machine is full of those ingenious yet simple ideas for which Mr. Koolhoven is remarkable. The pilot and gunner enter the deep pot-bellied fuselage through doors which are a good deal more commodious than are those of most cars, and these doors are locked by three-point catches like those used on safes. The cockpit has ample room in it for the fattest possible gunner wearing the largest kind of parachute-bustle. The arrangement for using a camera or alternatively a gun through the bottom of the machine is particularly neat.

The machine has been looped, rolled and spun with all the facility of a light single-seater, and has fulfilled all the requirements of the French and Dutch Flying Services. It is being built in France by M. Louis De Monge and those so built will be fitted with Bristol Jupiter engines made by the Gnôme-Rhône Co.

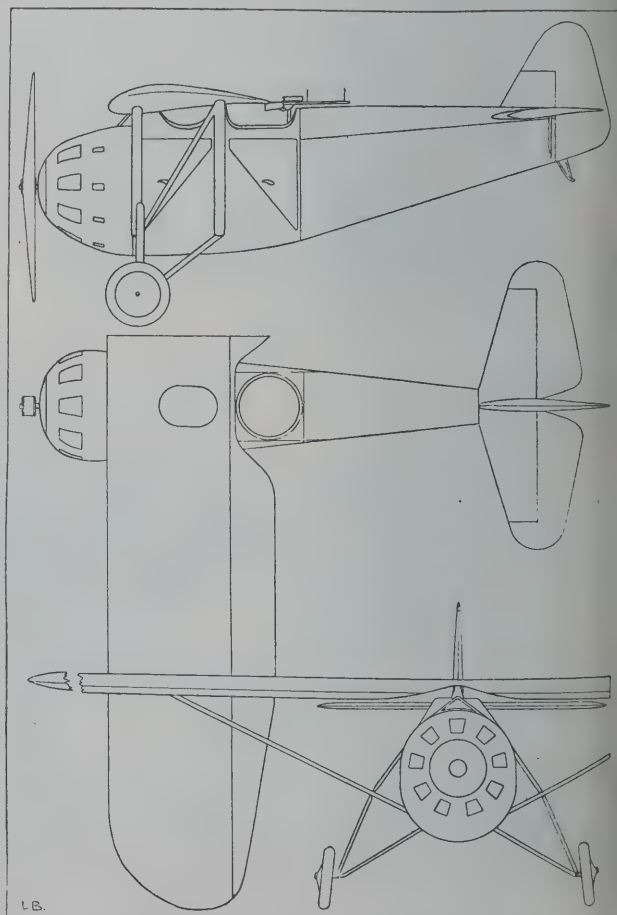
The undercarriage is a simple arrangement of stream-lined tubes with a very effective oleo-pneumatic gear which gives a travel of 10 inches or more and has stood a drop of over 10 feet without harm.

The curiously truculent look which has always been a feature of M. Koolhoven's war machines, just as the first commercial biplane, the F.K.27 was remarkable for its peaceful cow-like aspect, seems to be rather increased by the altered cowling of the Bristol Jupiter.

Incidentally, the whole engine-mounting can be taken out, complete with oil tank and replaced by a new power unit in an hour and a-half by three men. Which is a very important consideration in time of war. Altogether it is a very fine machine indeed. One only wonders why some

British firm, when it does realise that a little new blood may improve the breed of British aircraft, does not make use of Mr. Koolhoven's genius, especially in view of the fact that his experience was chiefly gained in England and that he knows the requirements of British pilots.

On the stand is a model of the three-engined passenger machine which Mr. Koolhoven has almost completed for the K.L.M. firm. It is a big monoplane with three of the good old reliable Siddeley Pumas, one tractor under each wing and one pusher cocked up on a trestle above the fuselage and behind the wing rather like the engine of a flying boat. The engine-mountings are designed so that each engine can be easily taken out for overhaul. The whole machine is de-



Outline General Arrangement of the F.K.31.

Some of the performances by
which the reliability of the

"Bristol"

JUPITER AIR-COOLED AERO ENGINE

have been demonstrated and
proved.

FOUR 50 HOURS' TYPE TESTS.

Four times in all the 400 h.p. "Bristol" Jupiter Radial Aircooled Engine has successfully completed officially-conducted 50 hour Type Tests, twice for the British Government and twice for the French Government.

TWO 150 HOURS' TESTS.

Twice the Jupiter engine has carried out official endurance tests of 150 hours' duration at 90% full power, once in Great Britain and once in France.

150 HOURS' FLIGHT TEST.

A Jupiter engine, fitted in a heavily-laden machine which necessitated the engine being run at over 90% full throttle, completed 150 hours' running on the Imperial Airways routes. On being stripped for inspection the condition was fully satisfactory.

IN THE ARCTIC AND THE TROPICS.

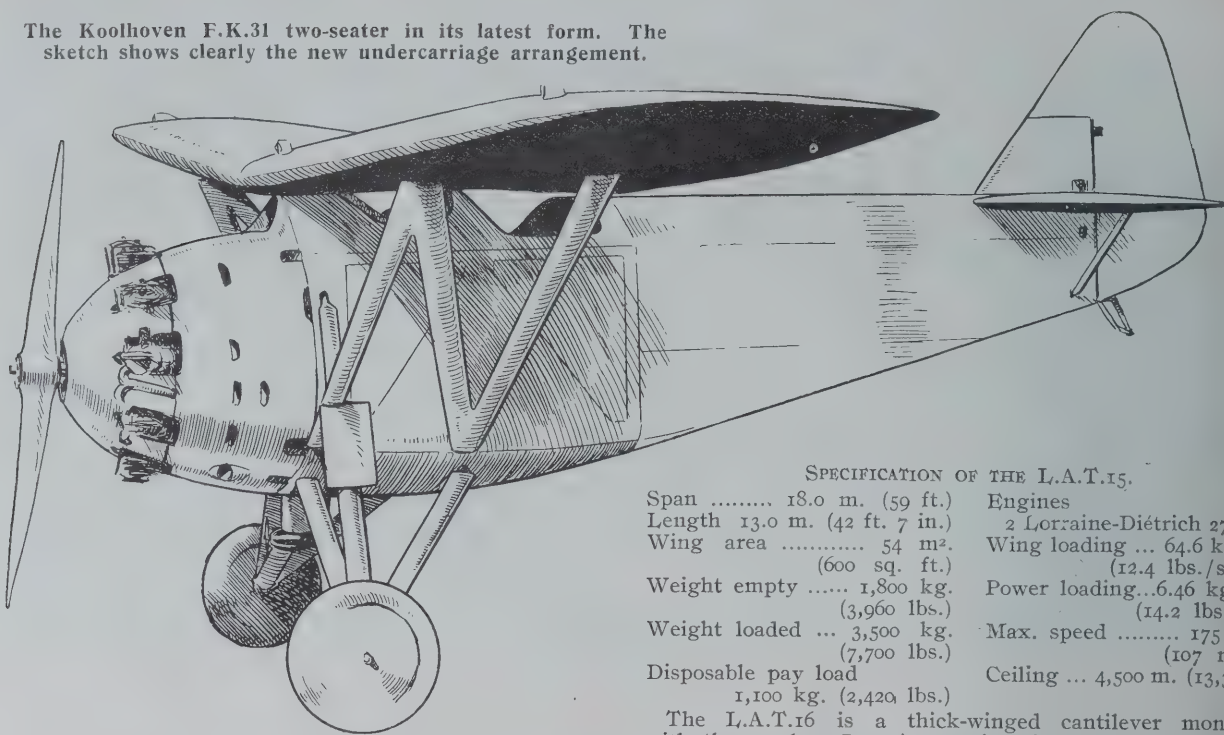
In arctic cold and tropical heat the Jupiter engine has effectively proved that under the most extreme climatic conditions its efficiency is unimpaired.

THE BRISTOL AEROPLANE CO., LTD.,
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Telephone: 3906 Bristol.

Telegrams: "Aviation, Bristol."

The Koolhoven F.K.31 two-seater in its latest form. The sketch shows clearly the new undercarriage arrangement.



signed for cheapness of production and simplicity of maintenance, and it should be a very interesting contribution to the progress of Civil Aviation.—C. G. G.

THE F.K.31.

Span	13.7 m. (45 ft.)	Wing loading ...	67 kg./m ² . (13.6 lbs./sq. ft.)
Length...	7.8 m. (25 ft. 7 in.)	Power loading...	4.24 kg./h.p. (9.45 lbs./h.p.)
Height ...	3.4 m. (11 ft. 2 in.)	Max. speed	225 km.h. (140 m.p.h.)
Wing area	27.2 m ² . (292 sq. ft.)	Min. speed	75 km.h. (46 m.p.h.)
Weight empty ...	1,040 kg. (2,290 lbs.)	Climb to 4,000 m. (13,120 ft.)	12 mins.
Weight loaded ...	1,800 kg. (3,960 lbs.)	Ceiling...	7,200 m. (24,000 ft.)
Engine ...	420 h.p. Jupiter		

SOCIÉTÉ D'AVIATION LATECOÈRE, 72, Avenue Marceau, Paris.

The L.A.T.15 is a twin-engined braced monoplane of similar general arrangement to that of the Jabiru—that is there are lower winglets carrying engine nacelles and serving as the lower members of the bracing girder. The nose of the central fuselage is cut off short and the two engines are so close together that the airscrew tips overlap the fuselage. The engines are 270 h.p. Lorraine-Diétrichs.

The pilot is in the nose of the fuselage and there is a cabin below and behind seated for six passengers. The whole machine is of duralumin structure—mostly tubular. This particular type of machine has been designed to give a considerable increase in speed over that attained with the present machines on the Latécoère service Toulouse-Casablanca.

SPECIFICATION OF THE L.A.T.15.

Span	18.0 m. (59 ft.)	Engines	2 Lorraine-Diétrich 270 h.p.
Length	13.0 m. (42 ft. 7 in.)	Wing loading ...	64.6 kg./m ² . (12.4 lbs./sq. ft.)
Wing area	54 m ² . (600 sq. ft.)	Power loading...	6.46 kg./h.p. (14.2 lbs./h.p.)
Weight empty	1,800 kg. (3,960 lbs.)	Max. speed	175 km.h. (107 m.p.h.)
Weight loaded ...	3,500 kg. (7,700 lbs.)	Ceiling ...	4,500 m. (13,300 ft.)
Disposable pay load	1,100 kg. (2,420 lbs.)		

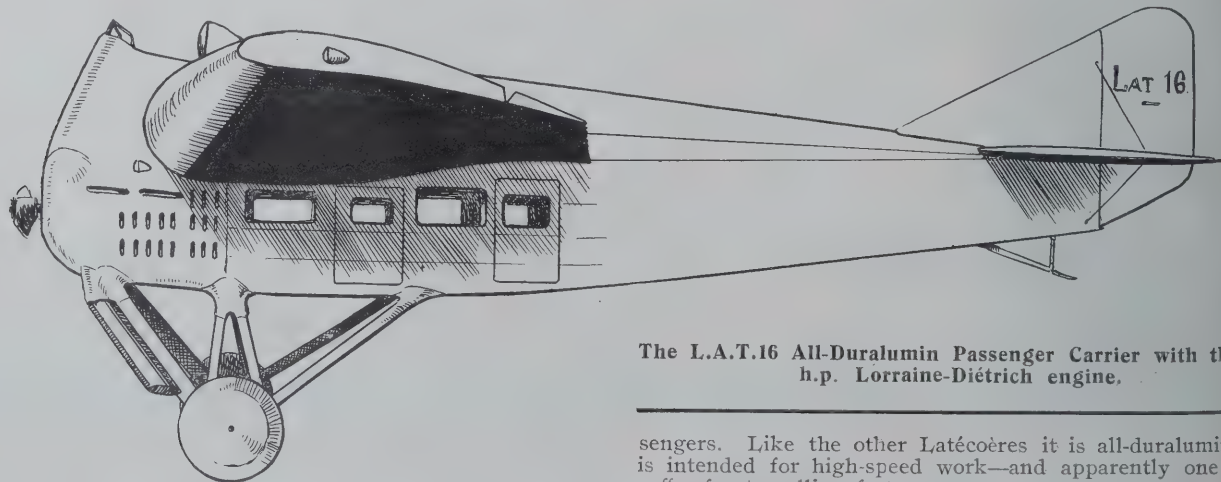
The L.A.T.16 is a thick-winged cantilever monoplane with the 400 h.p. Lorraine engine, intended for commercial work—particularly the carriage of mails and light goods. There is also a cabin divided into two compartments each with two seats. These are very cramped for leg-room—the space could be much more comfortably arranged if the partition were removed.

The wings, which have 8.9 metres (29 ft.) of free overhang per side, are built on spars, the top and bottom members of which are large duralumin tubes. The upper member is straight, the lower is a parabolic curve. The two tubes are joined by vertical tubular struts and the bays are cross-braced by wire. That is the internal structure is practically that of the normal biplane—but it is inside instead of out. The inner two bays of this girder are sheet-covered, and contain first, a large locker to contain mails, and in the next a petrol tank. The wing section is of the "Tadpole" type—actually Göttingen 435 at the roots and Göttingen 430 at the tips. There is a "wash in" on the incidence from root to tip of 6°—which brings the angle of zero lift of the two extreme sections together. It is said that the wings weigh 7 kg. per sq. m.—or about 1.4 lb./sq. ft.—which is almost unbelievably light for a cantilever wing of this span.

SPECIFICATION OF THE L.A.T.16.

Span ...	17.8 m. (58 ft. 4 in.)	Max. speed	180 km.h. (112 m.p.h.)
Length	13.0 m. (32 ft. 7 in.)	Ceiling ...	4,300 m. (14,000 ft.)
Wing area	48 m ² . 532 sq. ft.)		
Engine ...	Lorraine 400 h.p.		

The L.A.T.17 is another all-duralumin cabin passenger-carrier—this time of the rigidly-braced monoplane type. The bracing reminds one of Morane-Saulnier practice. It is shown on the stand of the Latécoère lines and not on that of the constructing firm. The engine is a 350 h.p. Renault, and the machine has an extremely cramped cabin for four pas-



The L.A.T.16 All-Duralumin Passenger Carrier with the 400 h.p. Lorraine-Diétrich engine.

sengers. Like the other Latécoères it is all-duralumin. It is intended for high-speed work—and apparently one must suffer for travelling fast.



The Brough Residential Flying Club adjoins the aerodrome and is situated conveniently near the Blackburn Flying School.

The Company's aerodrome offers perfect landing facilities from all sides, and the River Humber is two miles wide opposite the slipways.

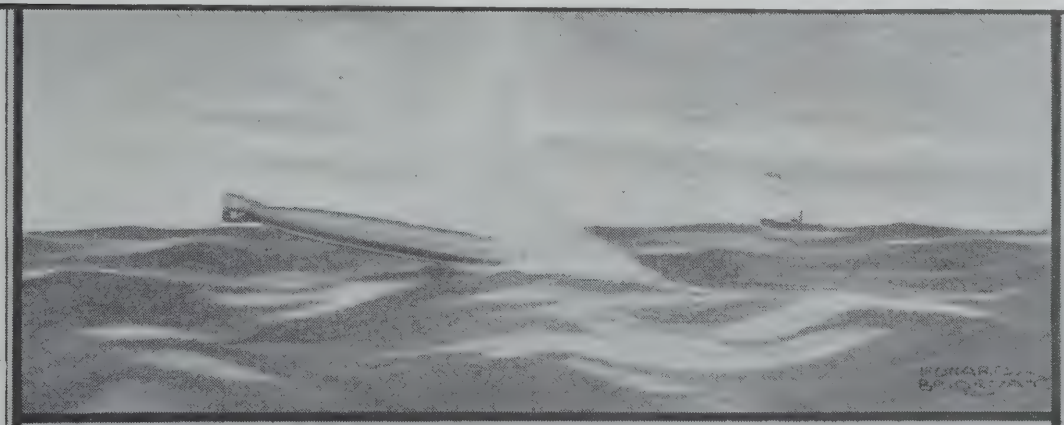
Instruction is given on both land and water alighting aircraft, advanced training on both Rolls and Napier engined aeroplanes.

For Seaplane work the Blackburn "Dart" dual control float machines are used.

Tuition in rigging, overhauling and maintenance is given.

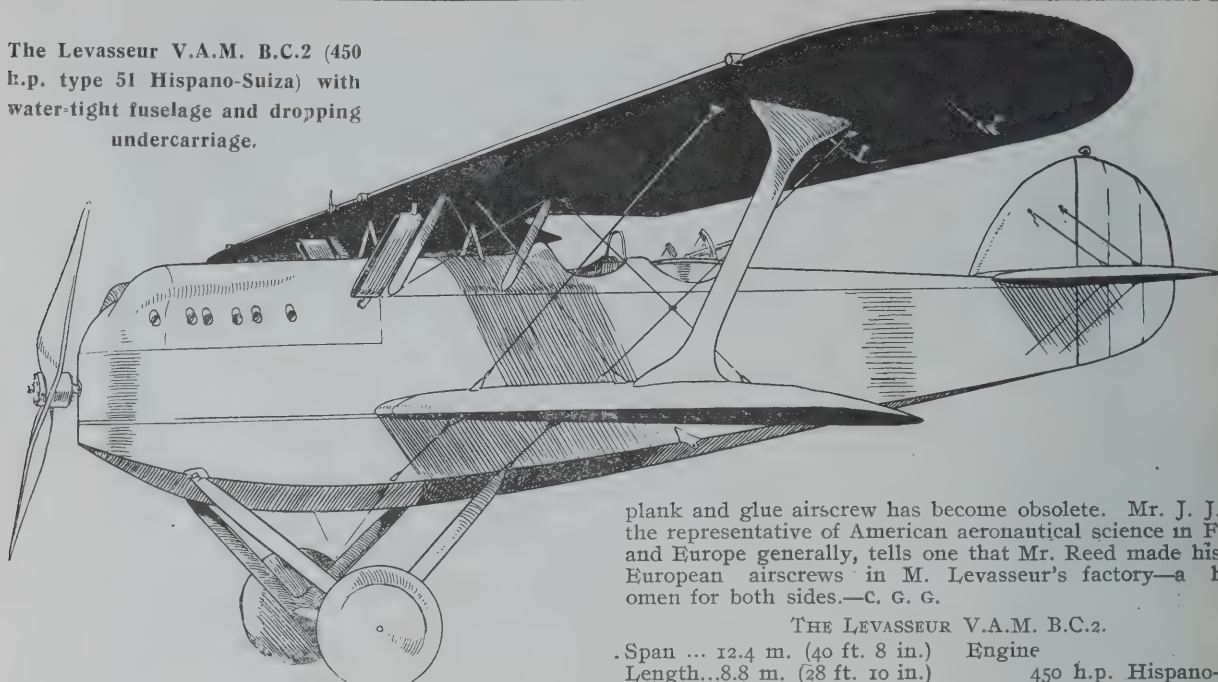
Particulars of a special instruction course will be gladly sent on application to Capt. Norman Blackburn, North Sea Aerial and General Transport Co., Brough, Yorks.

THE BLACKBURN AEROPLANE AND MOTOR CO., LTD.,
OLYMPIA, LEEDS.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Levasseur V.A.M. B.C.2 (450 h.p. type 51 Hispano-Suiza) with water-tight fuselage and dropping undercarriage.



SPECIFICATION OF THE L.A.T.17

Span ... 14.6 m. (47 ft. 10 in.)	Engine Renault 380 h.p.
Length...10.0 m. (32 ft. 9 in.)	Wing loading ... 54 kg./m ²
Wing area 36 m ²	(10.7 lbs./sq. ft.)
(400 sq. ft.)	Power loading...5.56 kg./h.p.
Weight empty ... 1,100 kg.	(12.7 lbs./h.p.)
(2,420 lbs.)	Speed 180 km.h. (112 m.p.h.)
Weight loaded ... 1,950 kg.	Range ... 500 km. (310 miles)
(4,290 lbs.)	

PIERRE LEVASSEUR, 17-21, Place Félix-Faure, Paris.

M. Pierre Levasseur as usual shows something interesting. He always does, though little seems to be heard afterwards of what always appear to be distinct steps in the progress of aircraft design. This time he shows two machines designed for naval work, or, as we should say, for the Fleet Air Arm. They are designed to drop their undercarriages and alight safely on the water and float indefinitely. One commends the idea to Imperial Airways Ltd.

It is worth remembering that this device of the dropping undercarriage for alighting on water was developed at the Isle of Grain in 1916 with complete success, and that further experiments indicated that the jettison of the complete undercarriage was entirely unnecessary provided the wheels could be removed before touching the water. This experimental work, however, did indicate the absolute hopelessness of attempting to land a wheeled machine on water with safety to the occupants.

The Riley-Gregory patent of 1912 or 1913 provides a very simple and cheap method of dropping the wheels.

Nevertheless it was apparently still the opinion of the Air Ministry during last summer that a passenger land machine could be "ditched" with its wheels on, and it is no more than one would expect to find that the French are making practical use of British experimental work before we remember that it was ever carried out.

The V.A.M.B.C.2 is described as a Biplace de Chasse Marin, that is to say it carries a pilot and a rear gunner. It is a single-bay biplane with I struts, a long overhang, no dihedral, and a very narrow interplane gap, the reason being that the lower plane is raised to leave plenty of fuselage for flotation under the wing-roots. The fuselage has a Vee bottom like a flying boat and the sides "tumble home" like the hull of a ship. The engine is a 450 h.p. Hispano-Suiza, with radiators carried on the centre-section struts, which rake upwards and outwards. A Reed airscrew is fitted.

The A.Mn.O.A.3 is a Triplace Marin d'Observation, or a three-seater fleet observation machine. It is a big two-bay biplane with a noticeable dihedral. The undercarriage is low, so to get airscrew clearance a four-blade screw is used made by bolting two ordinary screws at right angles on one boss—which one believes is bad practice. Like the other it has a boat-bottom fuselage and a droppable undercarriage.

M. Levasseur, who made his name as a manufacturer of wooden airscrews, has very wisely taken up the French rights for the Reed duralumin airscrew. As this screw is now recognised by everybody—except perhaps the airscrew experts at our Air Ministry—as being, at any rate for the moment, the most efficient thing of its kind in the World, M. Levasseur has done well to get in on the ground floor, so to speak, and thus assure securing business when the

plank and glue airscrew has become obsolete. Mr. J. J. Ide, the representative of American aeronautical science in France and Europe generally, tells one that Mr. Reed made his first European airscrews in M. Levasseur's factory—a happy omen for both sides.—C. G. G.

THE LEVASSEUR V.A.M. B.C.2.

Span ... 12.4 m. (40 ft. 8 in.)	Engine
Length...8.8 m. (28 ft. 10 in.)	450 h.p. Hispano-Suiza
Height ... 3.1 m. (10 ft. 4 in.)	Wing loading ... 48.5 kg./m ²
Wing area 37 m ²	(10 lbs./sq. ft.)
(395 sq. ft.)	Power loading ... 4 kg./h.p.
Weight empty ... 1,150 kg.	(8.9 lbs./h.p.)
(2,520 lbs.)	Max. speed 225 km.h.
Weight loaded ... 1,800 kg.	(140 m.p.h.)
(3,960 lbs.)	Climb to 5,000 m. (16,400 ft.)
	22 mins.
	Endurance 4 hours

THE LEVASSEUR A.M. O.A.3.

Span ... 14.5 m. (47 ft. 7 in.)	Engine
Length...9.4 m. (30 ft. 10 in.)	400 h.p. Lorraine-Diétrich
Height ... 3.8 m. (12 ft. 5 in.)	Wing loading ... 37.3 kg./m ²
Wing area 59 m ²	(7.7 lbs./sq. ft.)
(632 sq. ft.)	Power loading...5.5 kg./h.p.
Weight empty ... 1,435 kg.	(12.1 lbs./h.p.)
(3,160 lbs.)	Max. speed 180 km.h.
Weight loaded ... 2,200 kg.	(112 m.p.h.)
(4,850 lbs.)	Climb to 3,000 m. (9,840 ft.)
	24 mins.

LIORE ET OLIVIER, 6-16, Rue de Villiers, Levallois (Seine).

The LeO.12 is a twin-engined biplane of the usual type with upper and lower planes of equal span fitted with two 400 h.p. Lorraine engines and intended for bombing purposes. There are two rows of interplane struts on each side, beyond the engine nacelles—with the usual streamline wire bracing. Below each nacelle is an enormous streamline section trouser—roughly as deep fore and aft as the wing chord, and from the bottom of this projects the lower half of an enormous landing wheel which suggests that balloon tyres are coming into fashion for aeroplanes.

Owing to the fact that wing tips and tail surfaces are cut off square and one or two other minor indifference to appearance, the machine looks as though it had some Farman blood in it. Like the majority of recent machines it is of duralumin.

There is the usual Scarff ring in the nose of the fuselage, another aft the wing, with a pilot's cockpit between front gun and wing. In looks, at least, a very ordinary affair.

SPECIFICATION.

Span ... 22.2 m. (72 ft. 8 in.)	Wing loading 44.6 kg./m ²
Length 12.97 m. (42 ft. 6 in.)	(9 lbs./sq. ft.)
(13 ft. 10 in.)	Power loading 5.75 kg./h.p.
Height 4.26 m.	(12.6 lbs./h.p.)
Wing area 103 m ²	Max. speed at 2,000 m.
(1,140 sq. ft.)	(6,500 ft.) 185 km.h.
Weight empty 2,800 kg.	(115 m.p.h.)
(6,160 lbs.)	Climb in 1 hour 5,500 m.
Weight loaded 4,600 kg.	(18,000 ft.)
(10,120 lbs.)	Range ... 800 km. (500 miles.)
Engines 2 Lorraine-Diétrich 400 h.p. each.	

MORANE-SAULNIER 3, Rue Volta, Puteaux (Seine).

The type 35 E.P.2 is the well-known Morane parasol monoplane, and is in regular use in the French Army for school work. With its piano-wire bracing top and bottom and an 80 h.p. rotary engine—a Le Rhône—it would not have attracted very great interest in 1914. But the type appears to be perfectly satisfactory for its purpose.

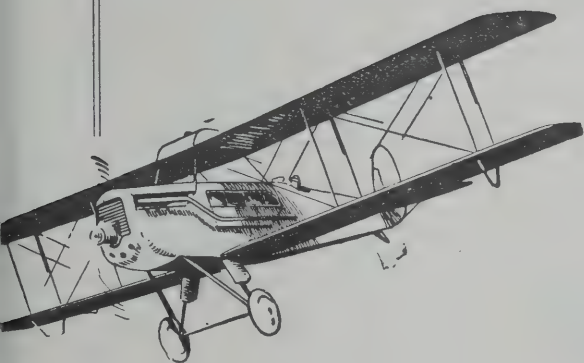
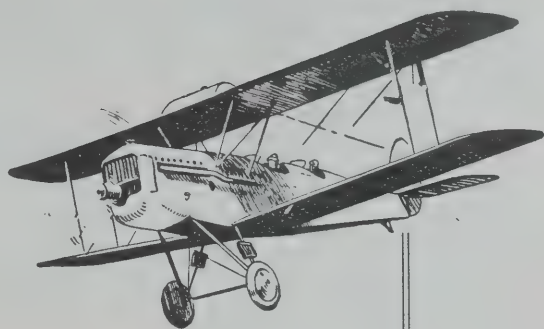
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DECEMBER, 1924.

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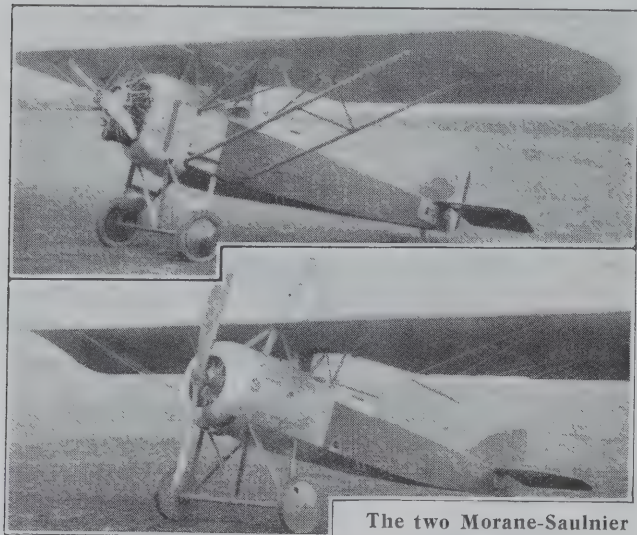
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The type 50 E.2 is another parasol monoplane of very similar general lay-out, but differs from the type 35 in having a thick section wing, a great multiplicity of rigid struts on the under side thereof in place of the piano-wire of the earlier type, and in being fitted with the 120 h.p. air-cooled Salmson Radial. This is carried on a detachable mounting and an interchangeable mounting for the 180 h.p. Hispano can also be supplied. Both of these machines are of the tandem two-seater dual control type.



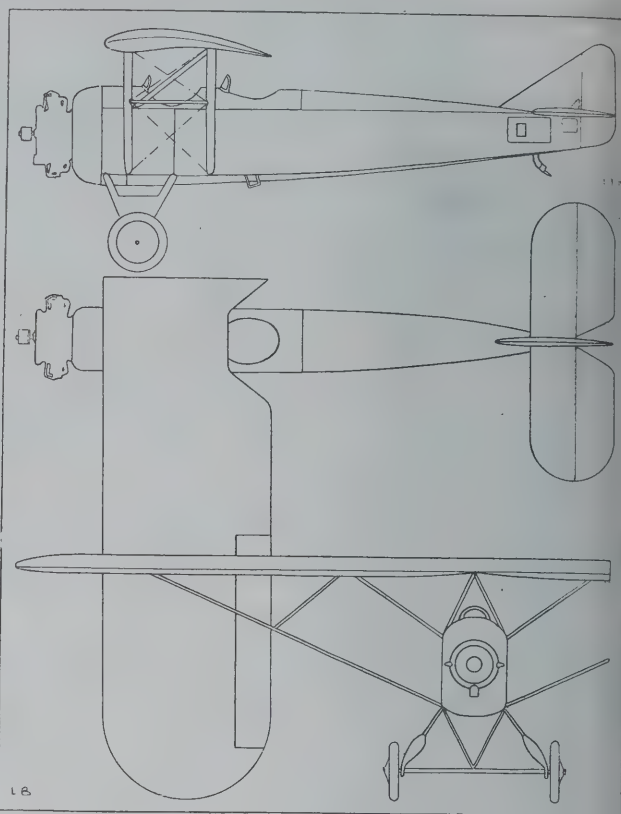
The two Morane-Saulnier Monoplanes.

NIEUPORT-ASTRA, 46/50, Boulevard Gallieni, Issy-les-Moulineaux.

The Nieuport 42 C.2 is a two-seater fighter of the Sesquiplan type, fitted with the 450 h.p. 12-cylinder Vee Hispano engine. It has a wooden monocoque body of the well-known Nieuport type, and is fitted with one large top wing of a thick "tadpole" section, carried above the fuselage, and one considerably smaller and very much tapered wing at the bottom of the fuselage. In addition the undercarriage axle is faired in to a wing section. The wings are rigidly braced by one single Y strut on each side which runs from the base of the undercarriage through the small lower wing and then branches to the two main wing spars.

The pilot is behind the wings and the after gunner's cockpit is very far back—nearly on the tail itself. As the tail is by no means either long or of abnormal size, and as the wing section is of a type which pretty certainly has a very large travel of C.P., one would prefer not to be a passenger in any flight involving more than the most gentle of manoeuvres.

The engine is cowled in with characteristic Nieuport thoroughness, and is cooled by Lamblin strut radiators on the undercarriage legs. The machine has two synchronised

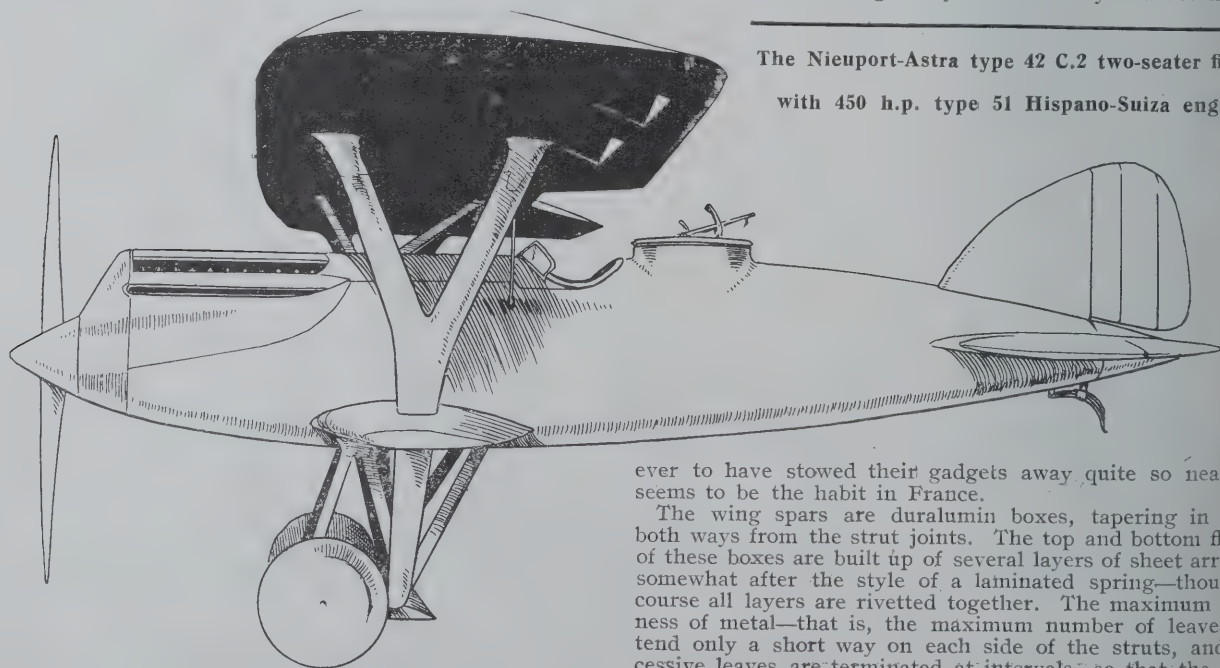


The Morane-Saulnier 50 E.2 School Machine.

Vickers firing forward, a third machine-gun on the top starboard wing clear of the airscrew, and a Scarff ring in the after seat.

The 42 C.1 is a single-seat fighter identical with the 42 C.2, except that the small wing at the bottom of the fuselage is omitted and there is no after cockpit. There is no complete example of this type at the Show, but the front of the fuselage, the wing spars and drag struts, the undercarriage and wing struts are shown in skeleton form, built of duralumin throughout. The front half of the fuselage, with engine, fuel tanks, pilot's seat and all the accompanying equipment, forms a detached unit, and it is believed that this unit can be fitted with the extra lower wing and with a fuselage end carrying a second seat so that a 42 C.2 type can be produced using mostly the same components.

The front fuselage framework is built up with duralumin tubes and sheet duralumin box-frames and is, it is understood, to be sheet metal covered. The complexity of the controls and equipment would gladden the heart of certain Air Ministry officials—though they unfortunately are not known

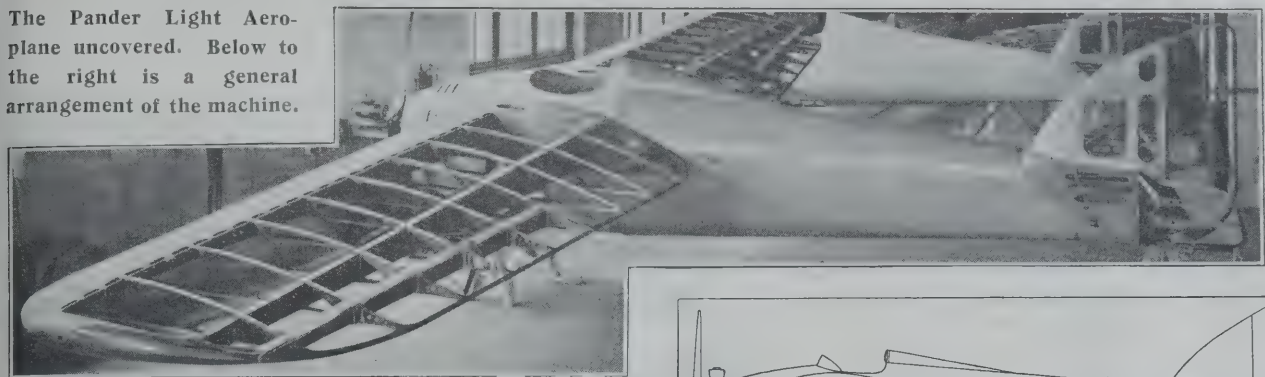


The Nieuport-Astra type 42 C.2 two-seater fighter with 450 h.p. type 51 Hispano-Suiza engine.

ever to have stowed their gadgets away quite so neatly: it seems to be the habit in France.

The wing spars are duralumin boxes, tapering in depth both ways from the strut joints. The top and bottom flange of these boxes are built up of several layers of sheet arranged somewhat after the style of a laminated spring—though of course all layers are rivetted together. The maximum thickness of metal—that is, the maximum number of leaves—extend only a short way on each side of the struts, and successive leaves are terminated at intervals—so that the thick-

The Pander Light Aero-
plane uncovered. Below to
the right is a general
arrangement of the machine.



ness of the flanges is tapered in steps. This machine is fitted with the Nieuport Astra steel airscrew—a somewhat curious affair which will be described elsewhere.

Specifications of the 42 type are only available for the normal timber built single-seater, but are given hereafter as in main dimensions single and two-seater, timber or duralumin are similar.

The Nieuport 38 is a somewhat plain, single-bay biplane with a rectangular fuselage designed for general utility purposes. Its peculiarity is the number of changes that can be rung upon it.

The wings are attached to a central fuselage unit in which is a pilot's seat with all controls, together with undercarriage and wing attachments. To the front of this unit mountings for either the 180 h.p. Hispano, the 180 h.p. Renault, or the 220 h.p. Lorraine-Diétrich can be attached.

Behind it may be attached a fuselage with an open after-seat, which can be fitted with dual controls for training, and which also can be fitted with cameras for aerial photography and surveying.

Alternatively another fuselage fitted with an enclosed two-seated side entrance body is available. The machine at the Show has the latter form of body and the 180 Hispano engine.

The structure is of the standard spruce and wire type and calls for no comment.

SPECIFICATIONS.

THE NIEUPORT 42 C.I.

Span ... 12.0 m. (39 ft. 4 in.)	Engine Hispano 450 h.p.
Length ... 7.5 m. (24 ft. 6 in.)	Wing loading ... 67 kg./m ² .
Surface 26.3 m ² .	(13.2 lbs./sq. ft.)
(292 sq. ft.)	Power loading ... 3.9 kg./h.p.
Weight empty 1,240 kg.	(8.5 lbs./h.p.)
(2,730 lbs.)	Fuel capacity 2 hrs
Weight loaded 1,750 kg.	
(3,850 lbs.)	

THE NIEUPORT 38.

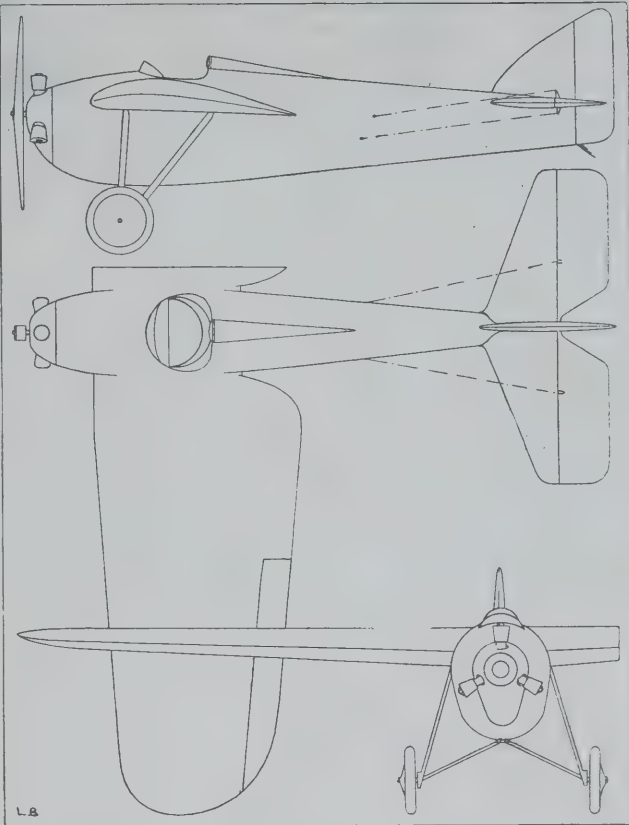
Span ... 10.9 m. (35 ft. 9 in.)	Weight loaded 1,350 kg.
Length 8.11 m. (26 ft. 7 in.)	(2,970 lbs.)
Surface ... 40 m ² . (443 sq. ft.)	Wing loading 33.75 kg./m ² .
Weight empty 950 kg.	(6.7 lbs./sq. ft.)
(2,090 lbs.)	

H. PANDER AND ZONEN, The Hague.

This firm exhibit one of the prettiest machines at the Show. It is of the light aeroplane variety, being a single-seater fitted with a three-cylinder Anzani of 25 h.p.

The machine is a cantilever monoplane with the wing at the top of the fuselage, carrying the pilot between spars. The fuselage is of oval section, with a veneer skin carried on laminated poplar formers and spruce stringers. No body of the monocoque type that one has yet seen has better lines or a more perfect finish.

The wing—which is built in one piece—is set on top of the fuselage structure, a removable cowling piece being then placed over it to carry the lines of the body over from engine cowling and the pilot's seat. The wing tapers in chord and thickness from centre to tips, which are well rounded off. The two spars are of box section—spruce booms and three-ply sides—and the leading edge is covered right round from front spar to front spar with veneer. The wing tip edging is similarly veneer covered. The beautifully smooth finish



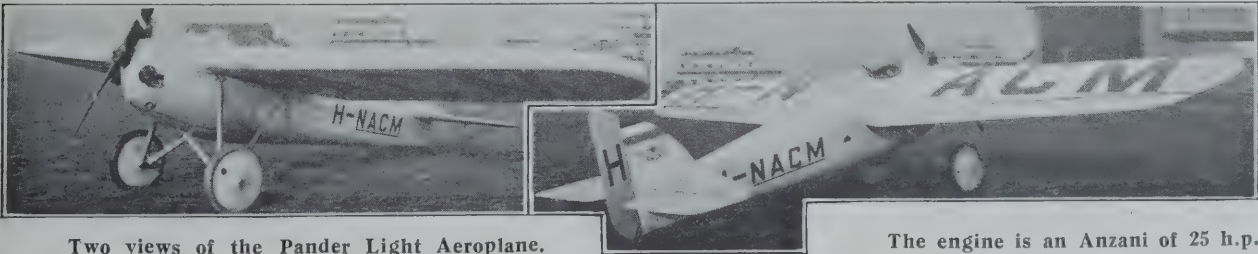
of this leading edge is in striking contrast to the collection of bumps and wrinkles which is so frequently seen in this country when an attempt is made to produce a veneer covered nose to a steeply curved wing.

The undercarriage is of the Vee type—each V being a welded-up unit of oval tubing which is fitted to the fuselage by hinged joints on the heavy formers which carry the wing spars. Two half-axes are hinged at the bottom of the fuselage and run down to the base of the V and then horizontally through it and the wheel hubs. Rubber springing of the usual type is employed.

The tail unit is entirely unbraced, and the surfaces are all stiffened along the leading edges by veneer applied as to the wing leading edge. A steel spring tail skid is attached to the bottom of the rudder, thus allowing the machine to be steered at low speeds on the ground.

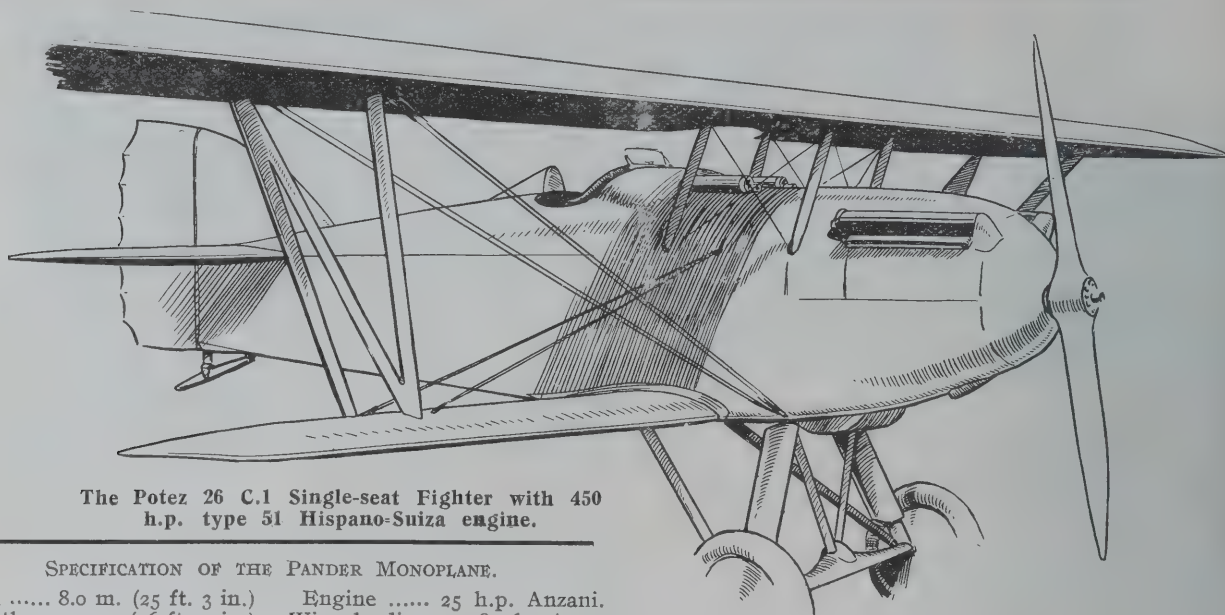
It is difficult to speak too highly of either the workmanship or the finish of this little machine. The detail design is simple and straightforward and the machine looks robust. It is said that it can be sold in England at £450.

The Pander light monoplane is built to the requirements of the Dutch Technical Air Service in regard to strength, workmanship and materials, which so far as one can discover are as rigid in essentials as those of the British Air Ministry, and it is understood that the Dutch Air Service are ordering a number of these machines in order to reduce the cost of keeping their pilots in flying trim.



Two views of the Pander Light Aeroplane.

The engine is an Anzani of 25 h.p.



The Potez 26 C.1 Single-seat Fighter with 450 h.p. type 51 Hispano-Suiza engine.

SPECIFICATION OF THE PANDER MONOPLANE.

Span 8.0 m. (25 ft. 3 in.)	Engine 25 h.p. Anzani.
Length...4.95 m. (16 ft. 3 in.)	Wing loading ... 28.5 kg./m ² . (5.65 lbs./sq. ft.)
Height ... 1.65 m. (4 ft. 4 in.)	Power loading ... 12 kg./h.p. (25 lbs./h.p.)
Wing area 10.8 m ² . (120 sq. ft.)	Max. speed 130 km.h. (81 m.p.h.)
Weight empty 190 kg. (418 lbs.)	Min speed 50 km.h. (31 m.p.h.)
Weight loaded 308 kg. (678 lbs.)	

HENRY POTEZ, 14, Rue Clément, Levallois-Perret, Seine.

M. Potez, of whom one first heard after the War 1914-18 through his early passenger machines built for the Franco-Roumaine Co., shows war machines of rather ordinary type.

The 25A.2 is a two-seat fighter biplane, with single bay wings and a pronounced overhang to the upper plane. Its speed is given as 230 kms.p.hr. and its ceiling as 7,500 metres. Its leading feature is an interchangeable engine-mounting, so that engines can be changed quickly. This mounting is a neat piece of duralumin girder work. It has a nose radiator very much like the original Bristol Fighter. The fuselage is like a De Havilland and the fin and rudder are also like a Bristol. The undercarriage is a simple oleo-pneumatic telescopic arrangement.

The 26C.1 is described as a single-seater (monoplace de chasse, or pursuit ship) and it is said to have a speed of 155 m.p.h. at 16,500 feet, which with a non-supercharged engine is pretty good going. Its ceiling is given as 8,500 metres, roughly 28,000 feet, which with its 450 h.p. Hispano-Suiza engine seems possible.

The third machine on the stand is a Biplace of Tourism, a neat but very ordinary little biplane with a 50 h.p. Anzani engine, which ought to fly quite nicely so long as the engine consents to operate.

M. Potez advertises the fact that 700 of his machines are in use by the Armies of France, Poland, Roumania, Servia, Spain and Denmark. As the machines are nice and simple and probably free from vice they are probably quite satisfactory.—C. G. G.

THE POTEZ 26 C.1.

Span ... 12.0 m. (39 ft. 4 in.)	Engine
Length...8.0 m. (26 ft. 3 in.)	450 h.p. Lorraine-Diétrich or
Wing area 32 m ² . (344 sq. ft.)	450 h.p. Hispano-Suiza.
Weight empty 1,050 kg. (2,255 lbs.)	Wing loading ... 48.4 kg./m ² . (9.95 lbs./sq. ft.)
Weight loaded ... 1,550 kg. (3,410 lbs.)	Power loading...3.45 kg./h.p. (7.6 lbs./h.p.)
	Speed at 5,000 m. (16,400 ft.) 250 km.h. (155 m.p.h.)
	Ceiling...8,500 m. (27,500 ft.)

THE POTEZ 25 A.2

Span 14.0 m. (46 ft.)	Engine
Length...9.0 m. (29 ft. 6 in.)	450 h.p. Lorraine-Diétrich
Wing area 46 m ² . (495 sq. ft.)	or 450 h.p. Hispano-Suiza.
Weight empty 1,180 kg. (2,600 lbs.)	Wing loading ... 42 kg./m ² . (8.6 lbs./sq. ft.)
Weight loaded ... 1,930 kg. (4,250 lbs.)	Power loading... 4.3 kg./h.p. (9.5 lbs./h.p.)
	Speed at 2,000 m. (6,560 ft.) 230 km.h. (143 m.p.h.)
	Ceiling...7,500 m. (24,600 ft.)

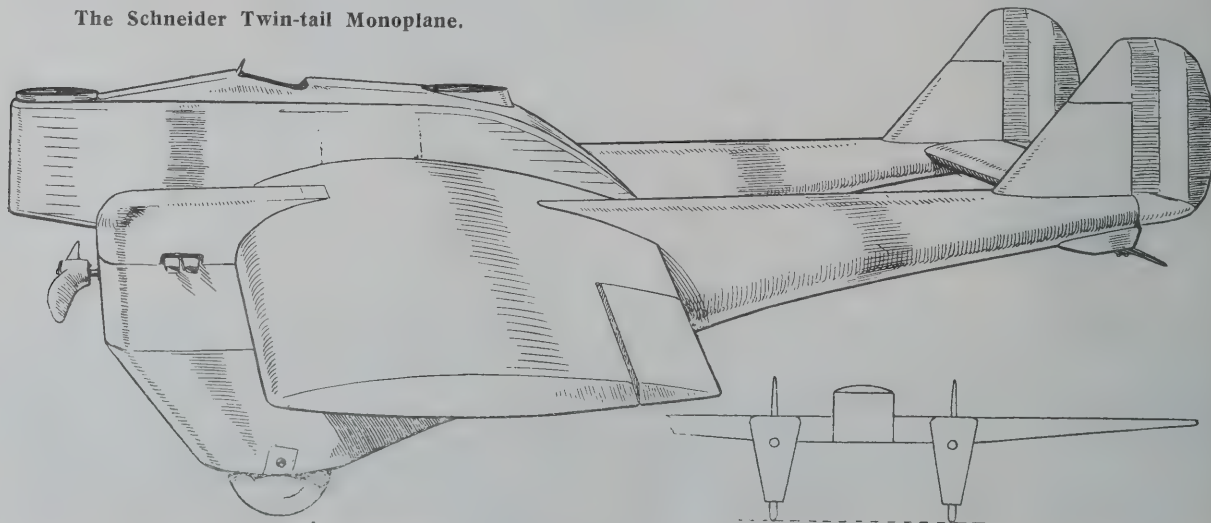
SCHNEIDER ET CIE., 42, Rue d'Anjou, Paris.

The aircraft department of this great firm exhibit a twin engine, twin fuselage cantilever monoplane, entirely constructed of "Alférium," a light alloy of their own which, however, appears to differ but slightly from duralumin.

The two fuselages are sheet metal monocoques, generally of oval section, deepened very greatly below the wings so that the landing wheels are half within the body. In the nose of each fuselage is an engine—type unknown, but believed to be a super-compressed Panhard or Lorraine of 500 h.p. or so. In the breast of the fuselages, behind the wheels, are what appear to be droppable petrol tanks.

The two fuselages are coupled together forward by a central section of wing, and aft by a tail plane. This wing is of fairly thick section, but it scarcely looks sufficiently thick to contain

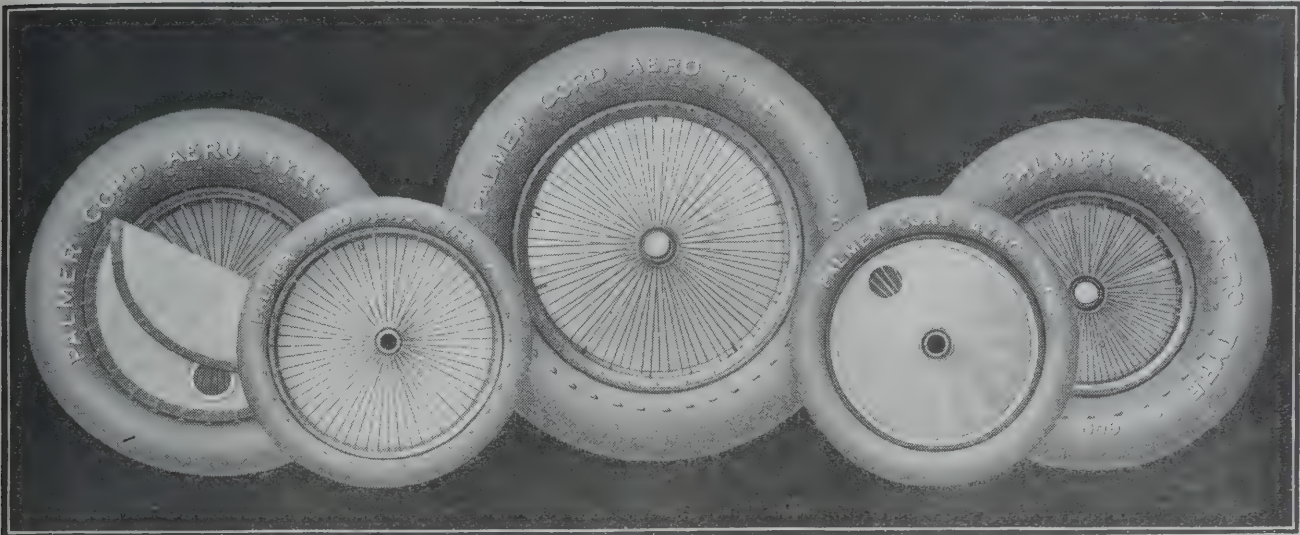
The Schneider Twin-tail Monoplane.





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Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line	Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore				Length	Bore				Length	Bore	
		m/m	m/m	m/m			m/m	m/m	m/m			m/m	m/m	m/m
375×55	168	111.12	25.4	Central	700×100	96	178.	55.	132/46	1000×150	201	185.	60.32	125/60
300×60	16	111.12	25.4	Central	"	99	178.	38.89	132/46	"	210	185.	60.32	Central
"	17	72.39	12.7	Central	"	112	150.	38.09	Central	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	650×125	119	178.	55.	132/46	"	149	185.	55.	Central
"	138	130.	38.09	Central	"	147	178.	55.	Central	"	155	220.	66.67	Central
575×60	21	160.	28.	Central	750×125	77	178.	44.45	132/46	"	166	185.	55.	125/60
"	34	150.	31.75	104/46	"	92	185.	55.	135/50	900×230	107	185.	55.	Central
"	111	150.	38.09	104/46	"	95	185.	55.	Central	"	108	185.	55.	125/60
600×75	21	160.	28.	Central	"	96	178.	55.	132/46	"	128	220.	66.67	Central
"	34	150.	31.75	104/46	"	99	178.	38.89	132/46	"	137	250.	80.	Central
"	111	150.	38.09	104/46	"	112	150.	38.09	Central	"	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	800×150	82	185.	55.	135/50	1100×220	134	220.	66.67	Central
"	79	178.	44.45	Central	"	85	185.	55.	Central	"	136	250.	80.	Central
"	100	178.	38.09	132/46	"	161*	185.	55.	135/50	1250×250	133	250.	80.	Central
"	101	178.	31.75	132/46	"	163*	185.	66.67	135/50	"	154	304.8	101.6	Central
700×100	77	178.	44.45	132/46	1000×150	169†	185.	55.	135/50	1500×300	115	304.8	101.6	Central
"	92	185.	55.	135/50	"	211*	185.	60.32	135/50	"	126	304.8	152.4	Central
"	95	185.	55.	Central	"	131	220.	66.67	Central	1750×300	139	400.	152.4	Central
					"	150	185.	55.	Central					
					"	167	185.	55.	125/60					
					"	174	250.	80.	Central					

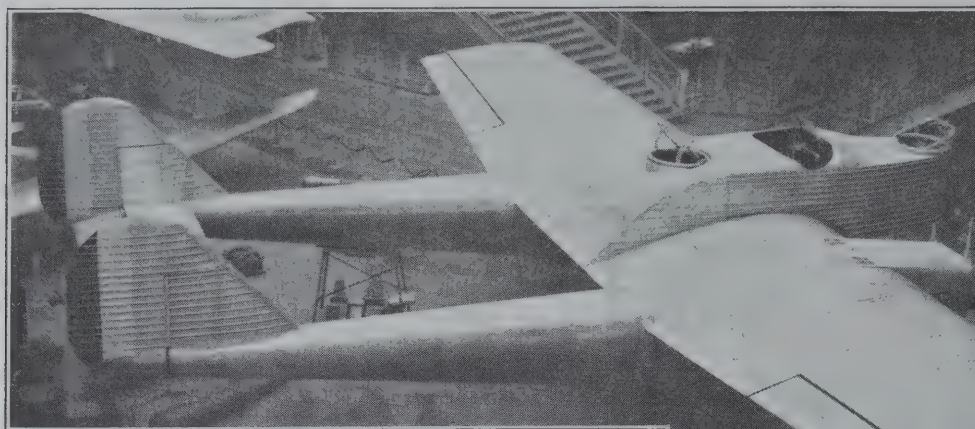
*Wheels Nos. 161, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres.
†Wheel No. 169 is fitted with Ball Bearings.

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PARIS 31, Rue la Boétie.



Top view of the
Schneider Twin-fuselage
Monoplane.

adequate bracing against torsional loads applied by rough ground to the two undercarriages. On top of this section of wing is a nacelle with three cockpits—fore and aft, with Scarff rings and intermediate with control gears.

The wings—which are entirely covered with corrugated sheet metal—are entirely free from external bracing.

Generally, the machine is attractive-looking, and for large sizes the type has good points, particularly as regards cleanliness and excellence of view from all seats. If—and one is afraid it is a large if—no trouble is experienced with torsional deflection of the central wing section the machine should be quite good.

SPECIFICATION.

Span ... 18.5 m. (60 ft. 8 in.)	Wing loading ... 64 kg./m ² . (12.7 lbs./sq. ft.)
Length ... 11.7 m. (38 ft. 4 in.)	Estimated Speed at 5,000 m. (16,400 ft.) ... 220 km.h. (136 m.p.h.)
Wing area 57 m ² . (630 sq. ft.)	Estimated Ceiling ... 7,000 m. (23,000 ft.)
Weight loaded 3,650 kg. (8,030 lbs.)	

S.E.C.M. (SOCIETE D'EMBOUTISSAGE ET DE CONSTRUCTIONS MECHANQUES.) 171, Boulevard du Havre Colombes, Seine.

This firm, which, as is indicated by its title, specialises in pressed and stamped metal work, has not only produced all-metal aircraft to its own design, but is responsible, it is said, for a good deal of the sheet metal work embodied in the machines of other French manufacturers.

In particular they have developed a type of fitting for fuselages with tubular members which consists of thin sheet metal stamped out with semi-cylindrical grooves, so that when two such sheets are rivetted together they form sockets for the tubular members, while the rivetted flanges serve for the attachment of bracing wires. The split sockets thus formed are attached to the tubes with hollow rivets, and make both a neat and a light job of ordinary fuselage joints.

They show on their stand two complete machines. One is the type 22, a side-by-side two-seater biplane with the 180 h.p. Hispano-Suiza, which is intended for advanced training and touring. This machine was also shown in 1922. The

fuselage is of duralumin tube with the type of split fitting above mentioned. The wings are built on rectangular section duralumin tubes and the ribs are lattice girders of circular tubes. The machine is both well made and highly finished.

SPECIFICATION OF THE S.E.C.M. XXII.

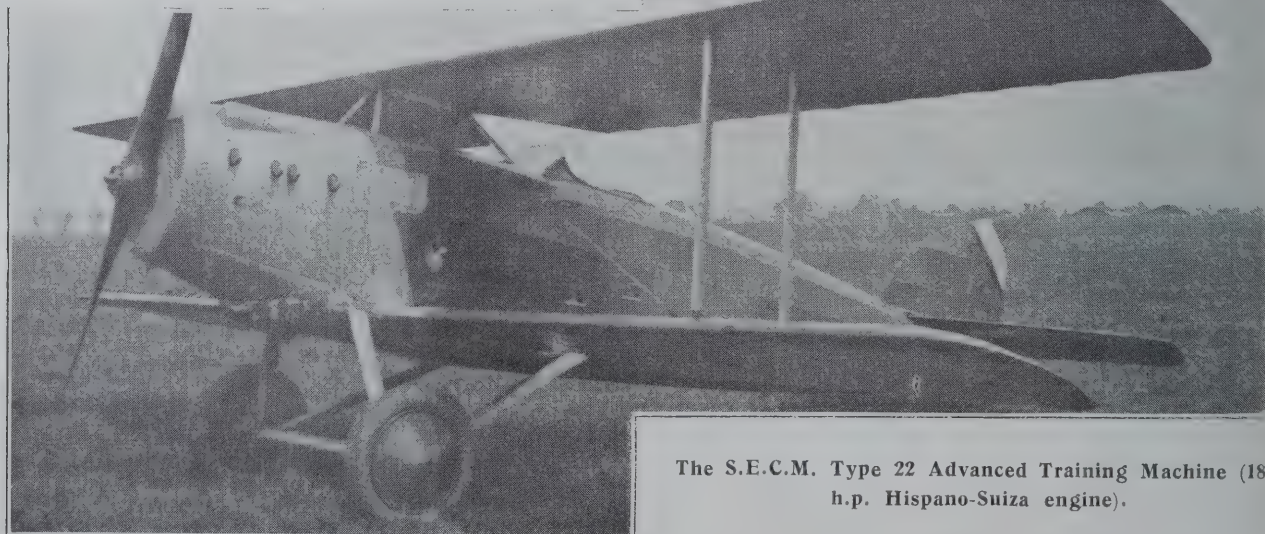
Span ... 11.2 m. (36 ft. 9 in.)	Wing loading ... 44.6 kg./m ² . (8.6 lbs./sq. ft.)
Wing area 24 m ² . (258 sq. ft.)	Power loading...5.95 kg./h.p. (12.3 lbs./h.p.)
Weight empty 687 kg. (1,511 lbs.)	Max. speed 192 km.h. (118 m.p.h.)
Weight loaded ... 1,007 kg. (2,215 lbs.)	Climb to 3,000 m. (9,840 ft.) ... 13 m. 50 s.
Engine Hispano-Suiza 180 h.p.	

The second machine is a two-seater night bomber type 12, fitted with a 600 h.p. Renault engine.

The fuselage is of duralumin tubes with split strut fittings, the bracing being mainly carried out by diagonal tubes in front of, and swaged steel rods behind, the wings.

The wings are of the single bay biplane type, with a top wing larger in both span and chord than the bottom wing. The lower wing spars are rectangular duralumin tubes, those of the upper wing are built up boxes with drawn corrugated booms and webs of flat sheet cut out to form a lattice girder—all of duralumin. The drag struts are circular tubes, and the drag bracing is of swaged rod.

The ribs of both top and bottom wings are of duralumin tube, exactly like those of the type 22.



The S.E.C.M. Type 22 Advanced Training Machine (180 h.p. Hispano-Suiza engine).

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WINNERS OF THE AERIAL DERBY, 1921-1922-1923.

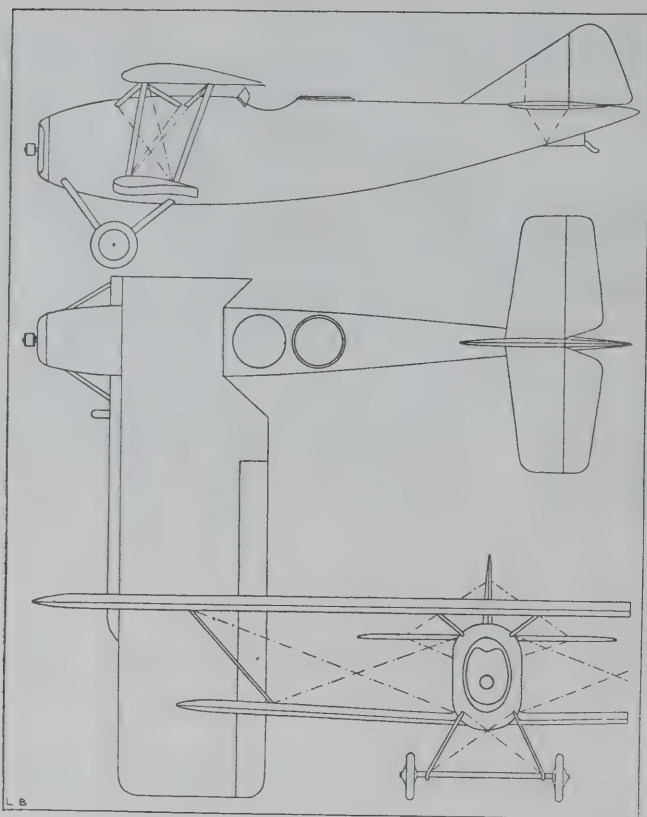
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(Machine in each of above events fitted with Napier Lion engine.)

Illustrated Catalogue on application.

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The S.E.C.M. 12 Night Bomber.

SPECIFICATION OF THE S.E.C.M. 12.

Span ... 19.0 m. (62 ft. 5 in.)	Wing loading ... 40 kg./m ² . (8.2 lbs./sq. ft.)
Length... 14.0 m. (45 ft. 11 in.)	Power loading ... 5.8 kg./h.p. (12.2 lbs./h.p.)
Height ... 4.1 m. (13 ft. 6 in.)	Max. speed 200 km/h. (124 m.p.h.)
Wing area 85 m ² . (914 sq. ft.)	Min. speed 80 km/h. (50 m.p.h.)
Weight empty ... 1,760 kg. (3,862 lbs.)	Climb to 5,000 m. (16,400 ft.) 45 mins.
Weight loaded 3,400 kg. (7,480 lbs.)	Endurance 6 hours.
Engine Renault 600 h.p.	

The World's Speed Record.

On Dec. 11, Adj.-Chef. A. Bonnet, flying the Bernard monoplane (450 h.p. Hispano-Suiza W type engine, Levasseur-Reed airscrew and Lamblin wing radiators) at Istres aerodrome four times over the observed 3-km. course, accomplished an average speed of 448.17 kms.p.h. (278 m.p.h.)

It is exactly a month to a day since Adj. Bonnet put up a French speed record of 389.89 km.p.h. (243.68 m.p.h.). Both these phenomenal speeds were made on the little S.I.M.B. Bernard racing monoplane, a specimen of which is shown at the Paris Salon.

Since the accomplishment of the French record on Nov. 11 no vital alteration has been made to the machine and the engine, the extra 40 m.p.h. being due to the suitable weather conditions and the extraordinary ability of the pilot, who spent some four-months' special leave from his *escadrille* preparing for this assault on the World's record. The wonderful performance is further enhanced by the fact that it is claimed that no preliminary diving on the 3-km. course was indulged in, and that the Bernard monoplane lands at 75 m.p.h., a speed hitherto unknown to French racing aircraft.

It will be remembered that after Lieut. A. Williams, U.S.N., had set up a World record of 429.025 km.p.h. (268.14 m.p.h.) on the 1923 Curtiss Navy Racer (500 h.p. Curtiss D.12a engine) all further high-speed flying was stopped in the U.S.A. as it was stated that the limit of human endurance had been reached and that any further attempts to raise the record might have fatal consequences.

The success of the new Hispano-Suiza engines is noteworthy. It is only a year since M. Birkigt decided to produce three new engines, the 450 h.p. W type, the 350 h.p. and the 450 h.p. Vee-type engines. The 450 h.p. W-type engine has only been into the air twice, these two occasions being on Nov. 11 and Dec. 11 when it put up the new French and World's speed records. The 450 h.p. Vee-type engine won the Coupe Beaumont and put up the new 500-km speed record in a Nieuport-Delage monoplane piloted by M. Sadi Lecointe

and the 350 h.p. V-type engine put up new 100 and 200-km. speed records in the Schreck F.B.A. flying boat piloted by M. Paumier, on both occasions on practically their first installation in an aeroplane.

The new speed record is one that will take a lot of beating and one that is of considerable credit to MM. Bernard and Hubert, the proprietor and designer of the Société Industrielle des Metaux et du Bois (S.I.M.B.), M. Birkigt, of the Société Hispano-Suiza, Adj. Bonnet, the new *recordman de vitesse*, and the constructors of the Lamblin radiators and the Levasseur-Reed airscrew.

A British Performance.

Those who regard Lieut. Peltier Doisy's flight from Paris to French Indo-China as the finest of all the long-distance flights of the year, would do well to note that his time over the major portion of the route was actually beaten by the Dutch aviator, Mr. Van der Hoep. M. Doisy left Aleppo on Apr. 25 and arrived at Bangkok, the capital of Siam, on May 9, taking 15 days over the journey. Mr. Van der Hoep left Aleppo on Nov. 6 and arrived at Bangkok on Nov. 17, thus taking only twelve days to cover 5,180 miles. Thus this particularly fine performance stands to the credit of a British engine, the Rolls-Royce Eagle IX in the Fokker machine—M. Doisy using a French engine in a French machine.

Bangkok is selected as the terminal for purposes of comparison because at that point Mr. Van der Hoep went South for another 1,500 miles to Batavia and arrived safely, whereas M. Doisy went North-East for 600 miles to Hanoi and crashed in landing. Aleppo is selected as the starting point of comparison because that was the first landing place at which both aviators stopped after reaching the Near East.

The Schneider Seaplane Race, 1925.

The Royal Aero Club have recommended that the regulations for 1925 be the same as in 1924 for the Schneider Trophy race. It is expected that it will be held at Baltimore. Great efforts are to be made to ensure that Great Britain shall be able to send over a team of three machines and reserves and it is hoped that arrangements will be made for some of the machines to undergo their test flights prior to the actual race itself.

The F.A.I. Paris Conference.

Lieut.-Col. M. O'Gorman and Lieut.-Com. H. E. Perrin were appointed delegates to represent the Royal Aero Club at the F.A.I. Conference sitting in Paris from Dec. 17-20.

The following questions are down for discussion:—(a) Standard rate for Aviation Insurance. (b) Customs Carnet for Touring Aircraft. (c) Schneider International Seaplane Race, 1925. (d) Method of controlling Height Records.

The Legal Committee, F.A.I.

Mr. Gordon Alchin has been appointed the representative of the Royal Aero Club on the Legal Committee of the F.A.I. The legal affairs of the Club have previously been in the hands of the Lord Halsbury who for a long time has been a prominent member. Mr. Gordon Alchin is in chambers with Lord Halsbury and served throughout the war as a pilot. He is regarded as one of the coming barristers and has a most delightful sense of humour. He was educated at Tonbridge and Brasenose, Oxford.

The Aerial Derby.

The Aerial Derby, which will be held on August Bank Holiday, is to be an International Scratch Speed Race over a course of approximately 200 miles open to aeroplanes which can accomplish a speed of not less than 150 m.p.h.

An International Handicap Race will take the place of the Aerial Derby Handicap. Both these events will probably be held at Lympne, unless a better venue is forthcoming.

Mr. T. O. M. Sopwith.

At a committee meeting of the Royal Aero Club held on Dec. 10, Mr. T. O. M. Sopwith was congratulated on his election as Chairman of the Society of British Aircraft Constructors.

The King's Cup Race.

It has been decided to hold a two-day race during July for the King's Cup. The course of approximately 1,000 miles is to be covered each day on two consecutive days, returning to the starting point at the end of each day. The course will be from London to Scotland and back with stopping places at certain large towns en route.

The Aeroplane Album.

A member of the Royal Air Force, writing of "The Aeroplane Album of British Aircraft," says:—

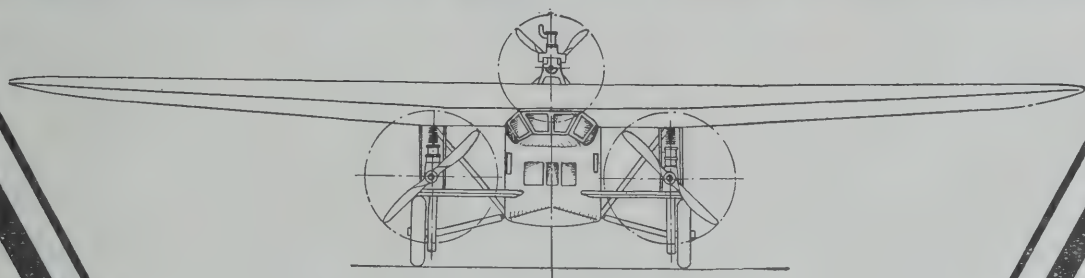
"It really is a priceless production, and everyone here is most enthusiastic about it, and agrees, one and all, that it is most awful good value and just the sort of thing we have been wanting for years because it shows all the various breeds. Strange though it may seem, lots of people here have never seen some of the machines portrayed in this publication."

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PARIS
STAND

45.

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I

THE ROYAL AIR FORCE.

The London Gazette.

Dec. 9.

GENERAL DUTIES BRANCH.—The following are granted perm. comms. in the ranks stated (Dec. 10):—Flt. Lt. J. Oliver, A.F.C., Flg. Off. T. H. French, D.F.C. The following Plt. Offs. are promoted to rank of Flg. Off.:—B. L. Young (Nov. 15); E. G. Whinney (Nov. 15), J. R. Pocock (Dec. 14). Flg. Off. F. B. Lawrie is granted the hon. rank of Flt. Lt. (Nov. 14); Flg. Off. L. Hamilton, M.B.E., D.F.C., is placed on half-pay, scale B. (Dec. 3); Flt. Lt. J. E. B. Maclean, D.F.C., is placed on the retired list (Dec. 10); Flt. Lt. E. J. Cooper, D.S.C., is transferred to the Reserve (Dec. 10); Flg. Off. J. S. Hughes is transferred to the Reserve, Class A. (Dec. 12); Flg. Off. C. B. Bond is transferred to the Reserve, Class A. (Nov. 19. (Substituted for the notification in Gazette of Nov. 18.)

STORES BRANCH.—Flg. Off. G. W. Sturman is placed on the retired list on account of ill-health (Dec. 7).

RESERVE OF AIR FORCE OFFICERS.—The following are granted comms. on probation in the General Duties Branch in the ranks stated (Dec. 9):—Class A—Flg. Offs.: L. F. Ashley, R. G. Hart, M.C., C. N. James, H. C. Kelly. Plt. Offs.: W. R. W. Kelley, M. C. Kerr, A. Smith. CLASS B—Plt. Off.: W. Mellor. CLASS BB—Plt. Off.: A. Gillespie.

The following Flg. Offs. are confirmed in rank:—E. Bradley, S. Hampton (Nov. 27); H. S. Robertson (Dec. 3). Obs. Off. F. W. Brown is transferred from Class C to Class B (Oct. 18). The following are transferred from Class A to Class C:—Flg. Offs.—H. E. Browne (Dec. 9); P. Chauncy (Dec. 9). Plt. Off.—F. H. Pidgeon (Oct. 23).

Flg. Off. L. R. Robertson relinquishes his com. on account of ill-health, and is permitted to retain his rank (Dec. 10). Flg. Off. K. W. Bransby resigns his com. (Dec. 9). The com. of Plt. Off. on probation T. T. Williams is terminated on cessation of duty (Dec. 9).

Appointments.

Week ending Dec. 15.

GENERAL DUTIES BRANCH.—Wing Commanders J. H. A. Landon, D.S.O., O.B.E., to H.Q., Iraq, for Flying (Detached) duties, 27/11. S. Smith, D.S.O., A.F.C., to H.Q., Iraq, for Air Staff (Armoured Car) duties, 27/11.

Squadron Leaders F. W. Stent, M.C., P. A. O. Leask, and F. E. P. Barrington, to H.Q., Iraq, 27/11. L. M. Bailey, A.F.C., to No. 27 Sqn., India, 27/11. C. C. Darley, A.M., to No. 1 School of T.T. (Boys), Halton, 2/11.

Flight Lieutenants R. M. Foster, D.F.C., to H.Q., Coastal Area, 2/11. R. L. Stevenson, M.B.E., to No. 3 Wing H.Q., India. J. A. G. Haslam, M.C., D.F.C., to No. 5 Sqn., India. E. Thornton, to Aircraft Depot, India. A. C. Sanderson, D.F.C., to No. 31 Sqn., India. A. H. Stradling, O.B.E., to Rest Camp, Iraq. J. G. S. Candy, D.F.C., to Aircraft Depot, Iraq. T. S. Ivens, to No. 8 Sqn., Iraq. A. W. Symington, M.C., and G. M. Lawson, M.C., to H.Q., Iraq. O. R. Gayford, D.F.C., to No. 1 Sqn., Iraq, all 27/11.

Flying Officers P. Murgatroyd, and G. J. Ross, to H.Q., Iraq. C. E. Horrex, A.F.C., to No. 45 Sqn., Iraq. H. Stafford, and E. R. C. Hobson, D.F.C., to Aircraft Depot, Iraq. (Hon. Flt. Lt.) H. M. Burrows, to No. 1 Sqn., Iraq. W. L. Dawson, C. S. Riccard, and R. H. Carter, to No. 84 Sqn., Iraq. L. Eardley-Wilmot, J. R. Bowring, M.C., and C. Wilson, to No. 28 Sqn., India. T. Humble, to No. 20 Sqn., India. J. G. Western, M.B.E., to No. 27 Sqn., India. R. J. Willson, to No. 31 Sqn., India. W. Badley, to Aircraft Depot, India. E. L. W. Alms, to No. 5 Sqn., India, all 27/11. W. J. Walsh, to No. 1 School of T.T. (Boys), Halton, 11/12. F. L. Kingham, to School of Photography, S. Farnboro', 19/12. H. J. Gearing, and R. A. A. Cole, to No. 4 F.T.S., Egypt, 27/11. D. S. Allan, to School of Army Co-operation, Old Sarum, 11/11. A. Neeson, to No. 9 Sqn., Manston, 5/12. G. F. Mackay, to School of Army Co-operation, Old Sarum, 19/12. (Hon. Flt. Lt.) V. J. Somerset-Thomas, to No. 1 F.T.S., Netheravon, 12/12. S. Wallingford, to No. 1 S. of T.T. (Boys), Halton, 8/12. A. F. McC. Riggs, to No. 99 Sqn., Birchem Newton, 5/12.

Pilot Officers D. T. H. Hooke, to No. 31 Sqn., India. D. L. Thomson, to Aircraft Depot, India. H. S. Dawe, F. G. Jennings, and A. G. Moon, to No. 1 Sqn., Iraq. H. N. Davies, to No. 30 Sqn., Iraq, all 27/11.

CHAPLAINS' BRANCH.—The Revd. D. F. Blackburn, to H.Q., Iraq, 27/11. MEDICAL BRANCH.—Wing Commander (Medical) F. N. B. Smart, M.B., B.A., to Basrah Combined Hospital, Iraq, 27/11. Flying Officers (Medical) F. W. G. Smith, M.B., B.A., R. W. White, R. L. O. Fisher, M.B., A. Dickson, M.B., and S. S. Proctor, M.B., to H. Q. Iraq, 27/11. T. Glynn, M.B., and A. A. Townsend, M.B., to H.Q., India, 27/11. R. S. MacLachy, to H.Q., Palestine, 27/11. B. W. Cross, to Research Laboratory and M.O.S. of I., 4/12. Flying Officer (Dental) G. A. Ballantyne, D.F.C., to Marine Aircraft Exper. Estab., Felixstowe, 11/12.

STORES BRANCH.—Squadron Leader (Stores) W. J. B. Curtis, O.B.E., to Stores Depot, Iraq. Flight Lieutenants (Stores) A. M. Saywood, to Rest Camp, Iraq. G. F. Law, to H.Q., Iraq. Flying Officers (Stores) A. McC. Goddard, to Stores Depot, Iraq. T. Thomson, to No. 8 Sqn., Iraq. C. W. Gore, to Aircraft Depot, India. Pilot Officer (Stores) R. G. A. Vallance, to Aircraft Depot, India, all 27/11.

ACCOUNTANT BRANCH.—Flying Officers (Accountants) E. W. Horncastle, to No. 1 Sqn., Iraq. E. V. Humphrey, to Aircraft Depot, Iraq. F. M. Hall, to No. 70 Sqn., Iraq, all 27/11.

K. R.

The Air Council has given King's Regulations and Air Council Instructions for the Royal Air Force, 1924, a good stout cover, realising perhaps that the post-war officer of the R.A.F. is an earnest, intelligent and conscientious young man, who lives with this interesting little volume at his elbow and sleeps with it under his pillow, for, as the psalm says, "promotion cometh neither from the East nor from the West, nor from the South," but rather through the pages of King's Regulations.

It is to be hoped that the blank space which follows para. 88—The Adjutant-General Duties—means that in course of

time the R.A.F. will fall into line with the Army and grant extra pay for Adjutant's duties, the labourer being worthy of his hire and the Adjutant's is a dog's life anyhow.

It seems a pity that His Majesty's Stationery Office has seen fit to make a separate volume of the appendices and index and to make Volume II a different size into the bargain, for this is certain to be a source of grave concern to the aforesaid ambitious young men whose Mecca is the Staff College.—C. M. MCA.

The Fleet Air Arm.

The Times of Dec. 15 states:—

As a result of experience gained during the recent course at Netheravon for naval officers attached to the Fleet Air Arm, it has been found desirable to divide future courses into two parts, a senior and a junior section, each lasting three months. The courses for 1925 will consequently be:—Junior section, Jan. 12 to April 15, May to July, Aug. to Nov., and Nov. to Feb., 1926; Senior section, May to July 30, Aug. to Nov., Nov. to Feb., 1926, and March to May, 1926. Thirty officers will be appointed to each course.

On the Middle East.

The following letter is of considerable interest at the moment:—

Sir,—Having read with great interest and appreciation your leading article in THE AEROPLANE of Nov. 26, there is just one remark which I think might in justice be qualified. You state that "The population of Egypt seems to be composed almost entirely of scum in the form of the student class and dregs in the form of the mere fellahin."

I do not particularly cavil at the description of the student class, which have ever formed a very small if noisy proportion of the population of Egypt and is found in any numbers only in the larger towns such as Cairo, Alexandria and Tanta (a hotbed of sedition), though no doubt they send out emissary agitators in times of political upheaval to places such as Zag-a-Zig, Mansarah, Assiut, etc. But I do not think you are quite fair in your description of the fellahin.

The fellah is childishly simple, a good worker, frugal and quite contented when delivered, as he has been for many years, thanks to British supervision, from the corvée, the kourbash, and the extortion and general oppression from which he has suffered from time immemorial, his most recent oppressors having been the Turkish or Turkish-mongrel satellites of the Khedives, who nominally at any rate owed suzerainty to the Sultan of Turkey.

In this connection it must be remembered that the real Egyptian brains are found almost exclusively in the heads of the Copts, who have not the moral courage to make full use of them, and of the Turkish element, which is naturally lazy but "apacious."

The fellah calls himself "Arab," but has none of the characteristics of the real Arab. None the less he is not at all a bad fellow, and the Upper Egypt boy, who approximates more nearly to the Berberine or Soudanese, is a really good specimen. Too easily led perhaps, without having the capacity to gauge the *bona fides* of the leader, but not troublesome if treated reasonably and easily satisfied.

Some hundreds of thousands of them did very good work with our troops in Sinai and Palestine during the War, often under very trying conditions and no difficulty was experienced with them.

(Signed) K. M. B.

A Christmas Number.

The Christmas Number of the Halton Magazine has just appeared and contains the following foreword by Air Marshal Sir Hugh Trenchard:—

"The past year has been marked by the steady development and expansion of the Royal Air Force. It has also been notable for the settlement, on a basis acceptable to both Services, of the long-standing controversy with the Admiralty as to the Fleet Air Arm.

"As our responsibilities increase so does it become incumbent upon us to work harder than ever for the Service to which we belong. In this respect the passing out from Halton at the end of this term of the senior entry of Boys is a notable event. They are the first to pass out of Halton, and on their behaviour and efficiency will, not only they themselves, but Halton be judged. I am confident that their training at Halton has been on sound lines, and that they can be relied upon in their future careers to uphold alike the best traditions of the Royal Air Force and the credit of Halton.

"I wish you all a Merry Christmas and a Happy New Year. (Signed) H. TRENCHARD."

The R.A.F. personnel at Halton are singularly fortunate in their Magazine and considering the amount of fresh talent which appears with each issue they evidently deserve it. The Christmas Number has 82 pages of reading matter, 3 coloured pictures, 12 pages of photographs and 36 pages of advertisements. A double-page series of sketches shows the first year "growing in stature and in skill," and is very good indeed. Unfortunately there is no space in THE AEROPLANE to describe the other good things in this issue, but Units and individuals can have it sent to them for a year for 2s., and it is worth a good deal more than that.

Aboukir Sports, 1924.

CRICKET:—The season began on April 23 and finished on Sept. 16, during which time 25 matches were played, resulting in 18 wins, 5 losses, and 2 draws. The most noteworthy match was against the Alexandria Cricket Club on May 8, when in a drawn match 307 were scored by Aircraft Depot before the innings was declared closed with 9 wickets down. The A.C.C. replied with 184 for 9 wickets, but all attempts to secure their last wicket were unavailing. The highest Aircraft Depot scores in this match were Flt. Lt. Lumley 74, and Sgt. Land 56.

The following teams provided the opposition during the season:—Service teams—Royal Navy: H.M.S. Iron Duke, H.M.S. Emperor of India.

Army: R.A.O.C., Mex., R.A.S.C., Mustapha, 1st Bn. East Yorks.



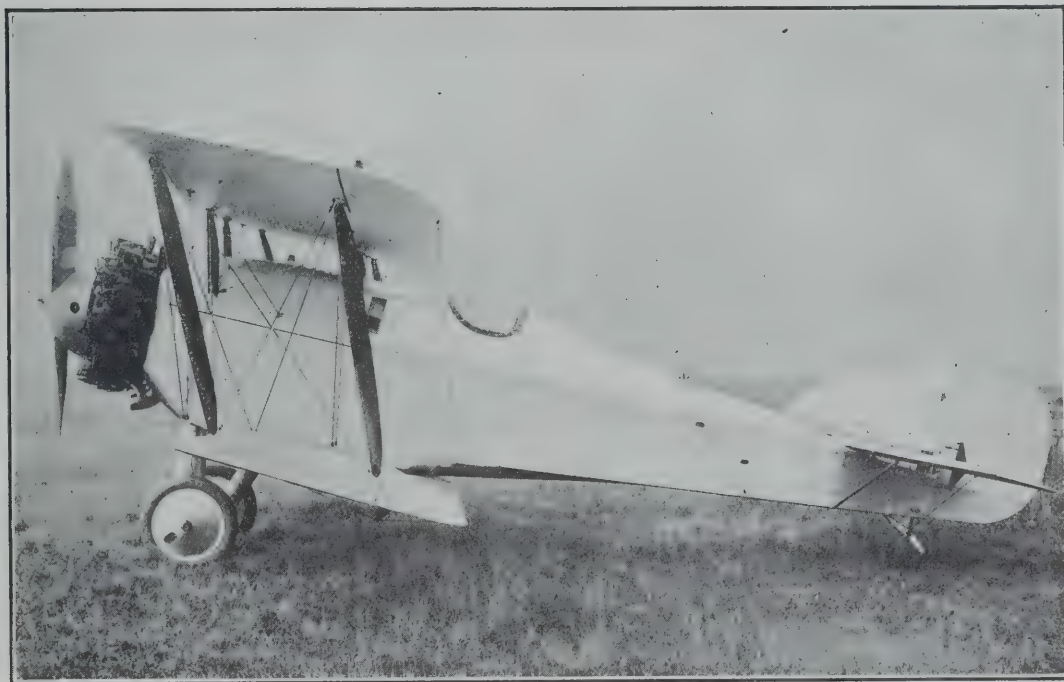
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Régt., Mustapha, 2nd Bn. K.O.S.B., Sidi Bishr, Royal Tank Corps, Mustapha.

R.A.F.: Stores Depot and Engine Repair Depot.

Civilian teams—Eastern Telegraph Co., Alexandria, Alexandria Cricket Club, Victoria College, Ramieh, Y.M.C.A., Alexandria, United Banks, Alexandria.

Batting—The best average was obtained by L-AC Read, 'C., who scored 437 in 15 innings (not out once), who headed the list with 31.2.

Bowling—Top of the bowling averages was Sgt. Land, who obtained 71 wickets for 555 runs, 7.8.

The highest individual score in Depot matches was scored by L-AC. Read, who made 95.

The annual Officers v. Sergeants match ended in a win for the Sergeants by 2 wickets, Sgt. Land making 103 not out.

Several inter-section matches were played, great keenness being shown despite the handicap of matting pitches.

LAWN TENNIS:—In June a knock-out Tournament was held at Aboukir, the following proving winners in the various events:—

Open singles, Flt. Lt. Dawes. *Handicap singles*, Wing Cdr. Hebden. *Open doubles*, Flt. Lt. Fernihough and Flt. Lt. Noakes. *Handicap doubles*, Sq. Ldr. Steele-Perkins and Flt. Lt. Dawes. *Open mixed doubles*, Mrs. Morgan and Flt. Lt. Dawes. *Handicap mixed doubles*, Flt. Lt. Morgan and Mrs. Starley. *Ladies' singles*, Mrs. Barraclough. *Open ladies' doubles*, Mrs. Barraclough and Mrs. Starley. *Handicap ladies' doubles*, Mrs. Jarvis and Miss James.

A match was played against the Officers of the 2nd Bn. K.O.S.B. in August, which was won by Aircraft Depot.

Sergeants: Two matches were played during the season, the opposition being the Mustapha Garrison Married Families' Club, and the Greek Old Boys' Club; both matches were lost.

SWIMMING AND WATER POLO:—

Swimming—During September a team of 6 was entered from Aboukir for the Relay Race at the Alexandria Swimming Club Sports and secured second place out of 6 entries. The team consisted of Flt. Lt. Banting, Flt. Lt. Jarvis, Sgt. Land, L-ACs. Hodgson, Emerton, and Tupholme. During the same month a team of 4 was also entered from Aboukir for a Relay Race organised by a detachment of the Mediterranean Fleet at Alexandria, which also secured second place out of 6 entries. Team consisted of Flt. Lt. Jarvis, L-ACs. Hodgson and Tupholme, and AC. Hundley.

During August the Aboukir Zone Aquatic Sports were held, when, after several exciting races, the Woodpeckers' Section of Aircraft Depot came out winners, having scored the lowest aggregate number of points.

Water polo.—Seven matches were played during the season, of which 5 were won and 2 lost. Aggregate goals 23-8. The match against H.M.S. *Emperor of India*, which was lost by the odd goal in 5, was thrilling to watch and the issue was in doubt until the last moment.

The annual Officers v. Sergeants Water Polo match was won by the Sergeants by 6 goals to nil.

Swimming and water polo continue to prove very popular during the summer with the R.A.F. stationed at Aboukir, the sea remaining pleasantly warm from April to October.

PISTOL AND RIFLE SHOOTING:—Honours were even in the annual Officers v. Sergeants Competitions, as the Officers won the rifle event and the Sergeants won the pistol event.

Teams were entered for the Middle East Musketry and Pistol Cup Competitions at Abbassia in September, Aircraft Depot securing second place in the pistol competition. The highest individual score in the musketry competition was made by Flt Sgt Greenslade, of Aircraft Depot. Miniature rifle shooting is also indulged in, great keenness being shown by all ranks.

BOXING:—At a Tournament held at Aboukir in September, in which the Army and the Navy were represented, Aircraft Depot won the Bantams (L-AC. Rutherford), Welters (L-AC. Walker), and the Middles (L-AC. Dolton).

At the annual Tournament organised by Middle East and held at Cairo in October, Aircraft Depot won the Middle East Novices' Boxing Competition for the fourth year in succession.

At a Tournament organised by Stores Depot (E) in August last, Aircraft Depot were particularly successful, winning six out of the seven bouts staged.

Air Affairs in Parliament.

In the House of Commons on Dec. 11, in reply to a question by SIR J. NALL the SECRETARY OF STATE FOR AIR said that there were 1,938 qualified officers and airmen pilots on the active list of the R.A.F., 274 officers and airmen under instruction as pilots, and 45 officers qualified as observers. In the Reserve there were 548 officers qualified as pilots and 59 qualified as observers.

Commander Hunsaker on Seaplane Design.

The lecture by Commander J. C. Hunsaker, U.S.N., the United States Assistant Naval Air Attaché in London, given before the Institution of Aeronautical Engineers on Friday, Dec. 12, gave an outline of the history of seaplane development in the United States from the earliest times until the present day. The lecture was of particular interest, firstly because the author has himself been very intimately concerned with the whole of the work with which he dealt, and secondly because in certain respects seaplanes in America have developed along lines by no means similar to those which have been followed in this country.

The earliest attempt to produce a seaplane in America was due to the Aerial Experiment Association, which consisted of Glenn Curtiss and Mr. and Mrs. Alexander Graham Bell. In 1909 the "June Bug" which had already flown very successfully as a land-machine, was fitted with twin floats of boat-like shape. Owing to lack of power and inefficiency of the floats the machine failed to leave the water. In 1910 Curtiss fitted his 1909 Gordon Bennett Cup machine with an Indian canoe as a central float, and successfully got off the water, to crash on landing. Encouraged by this partial success, Curtiss established a camp at San Diego, in California, where work could be carried on all the year round, and was there joined by a number of naval officers who were detailed to learn to fly and to assist in the development of a practical seaplane.

This collaboration between the Navy and Glenn Curtiss has continued ever since with the happiest results. The Naval side of the combination may have been bone-headed, conservative, and obstinate, but they had spurred on the designer to comply with the requirements of practical service, and between them they had produced robust and serviceable seaplanes which need not fear comparison with those of any other country.

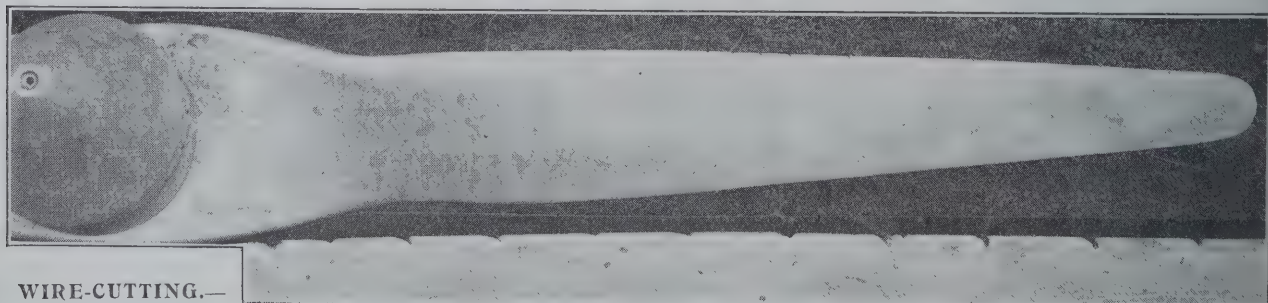
In February, 1911, Curtiss alighted alongside U.S.S. *Pennsylvania*, was hoisted aboard, hoisted out again, and flew back to his base camp. In July of the same year he produced the first amphibian—the Triad—and flew it from and to both land and water, and in November of the same year Curtiss made the first landing on a deck with sand-bag arresting gear, again on the *Pennsylvania*.

In the summer of 1912 Curtiss produced his first flying boat. Thus, by this early date, the single-float and twin-float types and the flying boat had all been produced and tried by Curtiss, with the collaboration of the U.S. Navy.

In 1912, Commander H. C. Richardson began to experiment with float models in the experimental model basin at Washington, and with this work began the engineering development of the American seaplane. Commander Richardson's tests in the tank, backed by full-scale experiments, showed the advantage of the Vee-bottomed, single-step float, with long, easy lines, and a correct rise of the after body. Since then all American floats had been based on tank trials, and the general form of float evolved by Richardson in 1912/13 has come to be typical of American seaplanes. American naval pilots had been impressed during the war by the long-float Brandenburg monoplanes, and were convinced of the superiority of this type of float over the short-float and tail-float system.

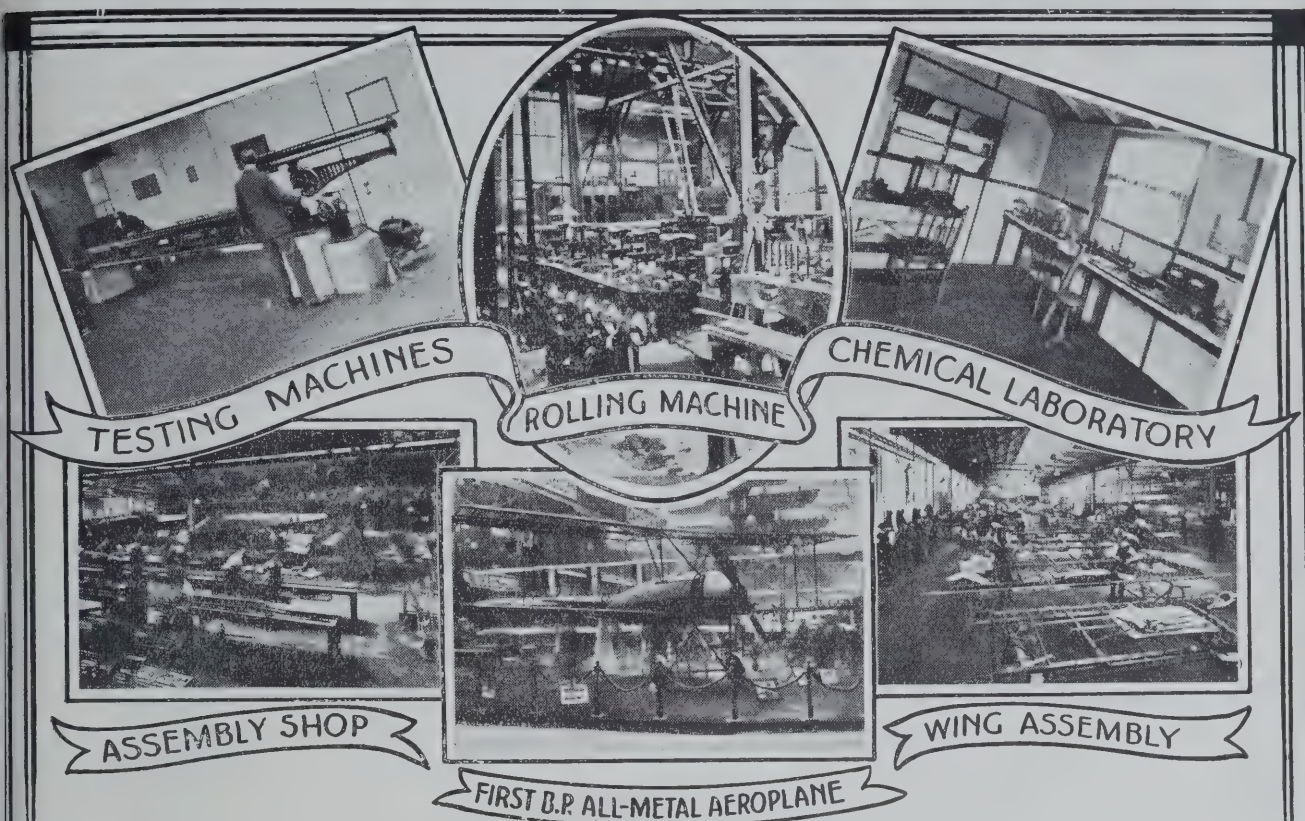
The practical conclusions drawn from American experience were that the single-central-float system, with good wing-tip floats, was more robust than the twin-float type, because of the shorter undercarriage struts, gave better protection to the airscrew, was cheaper to build, and was greatly superior for catapulting purposes. Incidentally, Commander Hunsaker mentioned that the first successful catapulting of a machine occurred as early as 1912, from the deck of an American cruiser.

The single-float system could not be used on short-span machines of very high power—such as racing types—because wing-tip floats could not well be fitted on such machines. Neither was it suitable for torpedo-carrying or for work on



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A Reed Metal Airscrew which hewed its way through a wire fence without serious damage. Below is a portion of the leading edge on a larger scale.



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HEAT TREATMENT



STOVING OVEN



ALL-STEEL MILITARY MACHINE

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rough seas, and the twin-float type was used for these purposes.

The small flying boat was found to be dangerous, particularly for school work, compared to the tractor type on floats. The boat type however was necessary for very large machines, as the twin-float type becomes structurally weak and heavy in large sizes.

Although it was possible to argue indefinitely as to the merits of the various main types, they found in practice that they could not get rid of any one of them.

Dr. A. P. Thurston, opening the discussion, remarked that the Wright brothers had given America the start in aviation, and that Curtiss and his fellow-workers, of whom the lecturer was one, had done for the American seaplane what the Wrights had done for the aeroplane.

"The Aeroplane" in the Arctic.

How THE AEROPLANE penetrates to the extremes of the Earth may be gathered from the following extract from a letter written by an aeronautical member of the Oxford University Arctic Expedition, 1924:—

"Funny thing, but the only English paper we got the whole time we were away was THE AEROPLANE. We read it through and through, adverts. as well. Even the scientific merchants would spend hours wading through aeronautical stuff they knew nothing about."

Presumably the advertisers in THE AEROPLANE would not get much in the way of orders from Spitzbergen but one hopes that the more intelligent advertisements made such an impression on the "scientific merchants" that when in due course these scientists become directly concerned with aviation their subconscious or subjective minds will recall the impressions which they then received.

The Grosvenor Challenge Cup.

The Grosvenor Challenge Cup Race for 1925 is to be confined to British machines and engines, the capacity of the latter not to exceed 2,500 c.c. This race will probably take place on August Bank Holiday at Lympne.

Easter Meeting.

It was decided by the Royal Aero Club to hold an Easter Meeting, preferably in the Midlands or the North. The races will be mostly confined to light aeroplanes with engines not exceeding 1,100 c.c.

The rules for all competitions and races are now being drawn up by the Royal Aero Club.

Light Aeroplanes.

Sprint races for Light Aeroplanes with engines not exceeding 1,100 c.c. will be held on August Bank Holiday in connection with the Aerial Derby.

Certificates of Performance will be given by the Royal Aero Club for (a) Height in a given time. (b) Greatest speed over 3 kilometres. (c) Greatest speed over 100 kilometres. (d) Greatest height. (e) Speed range.

Alterations to Royal Aero Club Premises.

It is understood that certain alterations to the Club Premises to provide additional accommodation for the members have been approved by the committee.

[No details are to hand as to what these improvements are but they are believed to embody the construction of an underground vault for the reception of bodies of deceased members killed on the premises, who were radio fans or who insisted on discussing the latest murder cases. It is further suggested that as those interested in aviation in the Club are now nearly a strong enough body to overcome those terrible motor-mongers who will talk nothing but cars, there will probably be a vault for the reception of the bodies of the latter also.]

Rolls-Royce, Ltd.

The Directors of Rolls-Royce, Limited, will shortly issue their annual report. It will show that (subject to audit) the profits for the year ended Oct. 31 last amounted to £163,000.

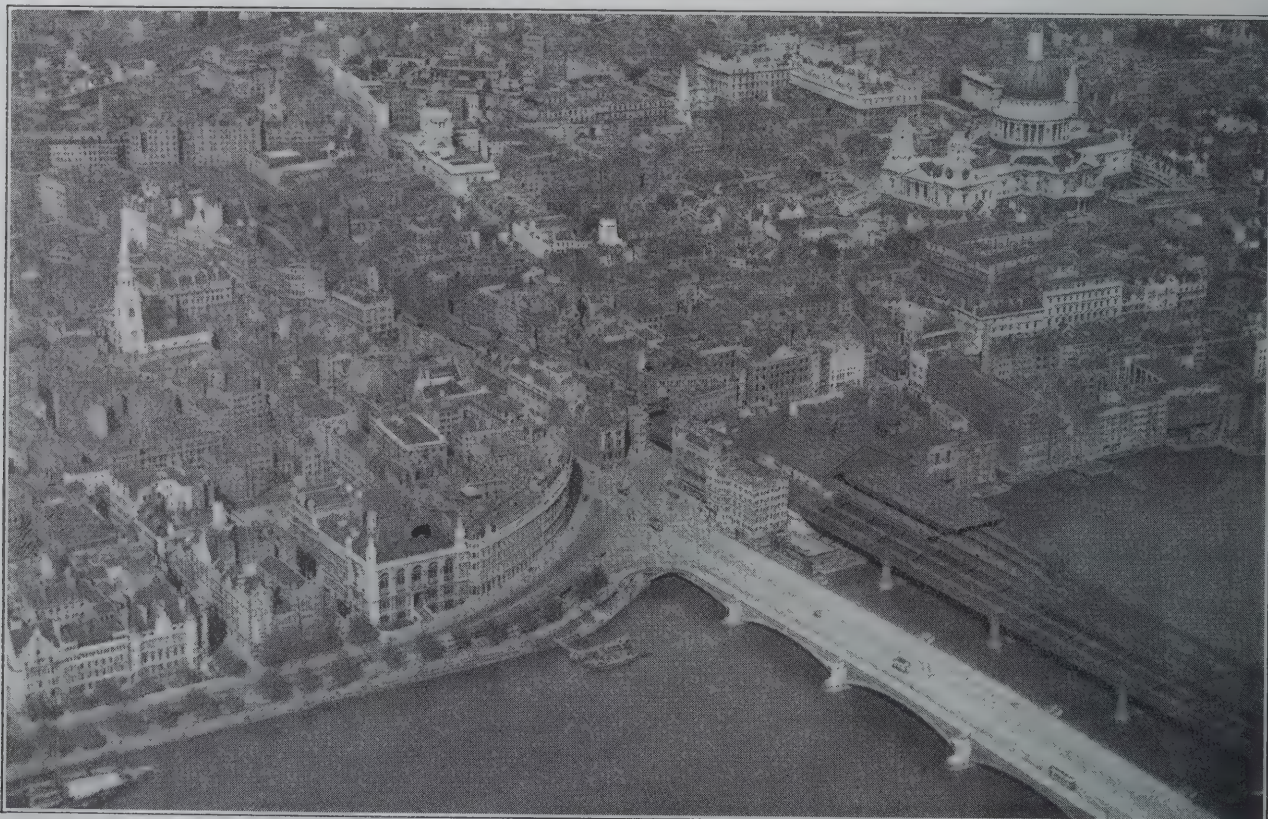
They have decided to recommend at the Annual Meeting of shareholders, which is to be held at Derby on Monday, Jan. 12, 1925, that a dividend of 8 per cent. should be paid in respect of the year named.

A Parnall Function.

The employees of the well-known firm of George Parnall and Co., Ltd., held their third Annual Dinner at The Crown Hotel, Bristol, on the 5th instant, with Mr. George G. Parnall in the chair.

Mr. Parnall, in replying to the toast of the Firm, mentioned their imminent extension and to their occupation of Yate Aerodrome, where they would have every facility for the furtherance of efficient aeronautical work. The excellent buildings there would provide five or six times the floor space of their four factories at present occupied in Bristol.

All the guests spent a very pleasant and enjoyable time and each voted it even better than last year—thanks to the energies of the organising committee. The humorous and musical programme arranged by the promoters added to the success of the evening, and was ably contributed to by members of the staff. It is of interest to note that the toast list included that of the A.I.D. This was honoured in a way which demonstrated thoroughly how cordially the lion can lie down with the lamb.



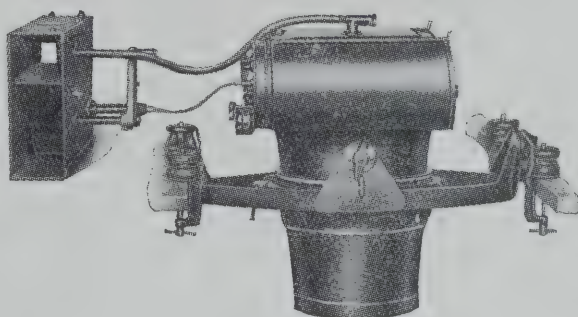
LONDON FROM THE AIR.—A photograph taken by the Surrey Flying Services showing the Northern end of Blackfriars Bridge and St. Paul's Station and Railway Bridge. The curved building opposite the end of Blackfriars Bridge was De Keyser's Hotel. Later it was called Adastral House and was the Administrative Headquarters of the Royal Flying Corps, and later still of the Air Board. It is now Lever House. St. Paul's Cathedral is seen in the right-hand top corner.

Eastman Aero Camera

Model K1

for Topographical Work

The Eastman Aero Camera (Model K1) is entirely automatic in action. Driving power is provided by a wind motor containing a rotary paddle wheel, with a lever control, which also regulates intervals between exposures. Any number of exposures—size $9\frac{1}{2}$ ins. x $7\frac{1}{16}$ ins. (18 x 24 cm.)—up to 100 can be made on one 75 ft. roll of Eastman Daylight Loading Film. The film is held flat by the constant suction caused by the Venturi tube. Shutter speeds can be varied at will from 1/90 to 1/310th of a second. Fitted with either 12 in. or 20 in. f4.5 lens.



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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 13; Tuesday, 9; Wednesday 2; Thursday, 0; Friday, 0; Saturday, 0; Sunday, 7.

IMPERIAL AIRWAYS, LTD.:

London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 17, passengers 52, freight 7 tons.

AIR UNION:

Paris—London: Machines 6, passengers 14, freight $7\frac{1}{2}$ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 5, passengers 11.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 2, passengers 5.

SPECIAL MACHINE:

DE HAVILLAND AIRCRAFT CO., LTD.:

Machine 1, passengers 1.

Total number of trips by British machines: 18, carrying 53 passengers. Foreign machines: 13, carrying 30 passengers.

Comparative Figures:

For week ending Dec. 14:

Machines, 31; Passengers, 83; Crews, 37; Total personnel, 120.

Corresponding week, 1923:

Machines, 43; Passengers, 45; Crews, 73; Total personnel, 118.

Corresponding week, 1922:

Machines, 36; Passengers, 123; Crews, 70; Total personnel, 193.

Corresponding week, 1921:

Machines, 11; Passengers, 20; Crews, 19; Total personnel, 39.

Corresponding week, 1920:

Machines, 11; Passengers, 14; Crews, 12; Total personnel, 26.

Croydon Notes.

The fog has disorganised traffic to and from Croydon this week in the same proportion as it has disorganised everything else, and for three days no machine was able to leave or arrive at the aerodrome. On Wednesday, when the fog was at its thickest at Croydon, Mr. Hinchliffe, on a W.8b, tried to come through from Lympne, where he had landed the previous night. It was clear at Lympne, but as he came on the weather became thicker, and here and there he could see a tree or a church spire sticking through the fog. He steered a compass course for Croydon, but when he arrived over it was covered in dense fog, although at 900 feet he was in clear weather. On the ground one could not see one's hand before one's face and it was most curious to hear the noise of Mr. Hinchliffe's engines overhead.

By good luck Mr. Hinchliffe caught a sudden glimpse of Kenley Aerodrome through the fog and made for it and landed safely. He is very emphatic in stating that had it been possible to send up through the fog some guide, such as a balloon, from each corner of the aerodrome, and given a machine with a reasonably slow landing speed, there would have been nothing to prevent the air lines from running in such a fog. For although all ground transport was practically at a standstill fine and clear weather was prevailing up above.

The kite-balloon returned to the aerodrome on Tuesday. It ascended above the fog on Wednesday and came into bright weather, sunshine and mosquitos. Also there was a number of birds flying round. The balloon ascended again after dark when the fog was at its densest and came into clear weather at 500 ft. All the aerodrome lights were switched on but none of them could be seen with the exception of the Neon fog-piercing beacon, whose red glow could be seen distinctly on the top of the fog.

All sorts of new machines are rumoured to be built or building for Imperial Airways. The Avro-Rolls-Royce 14-passenger machine is due at Croydon this month and the D.H.54 is due for test next month. It has been known for some time that some three-engined machines were to be built. One hears that a W.8f Handley Page is to be fitted with three Armstrong-Siddeley Jaguars and a special all-steel Armstrong-Whitworth, driven by three Jaguars, has been ordered. In fact it is said that three of this latter type are to be built because the cost of maintenance of an all-steel machine cannot possibly exceed that for wooden machines.

Sir Sefton Brancker's Tour.

Sir Sefton Brancker, who is flying to India on a D.H.50, is still detained at Constantinople, where he is awaiting a spare cylinder block to replace one which was cracked.

Light Aeroplane Clubs.

The Royal Aero Club has been selected by the Air Council to carry out in the London District the Council's scheme for Light Aeroplane Clubs. The scheme of the Air Council is the provision of £2,000 for each Club for the purchase of Light Aeroplanes, the equipment of which will be maintained by the Clubs. The Air Council will make an annual grant to each Club of £500 for two years towards the cost of maintenance of machines.

There is to be only one grant for the London District and therefore the establishment of several Light Aeroplane Clubs is out of the question. To meet the situation the Royal Aero Club has decided to form a section to be known as "The Royal Aero Club (Light Aeroplane Section)," which will be entirely devoted to flying and the whole of its activities will be confined to the Aerodrome. Both sexes are eligible for complete membership.

The object of this Section will be to gather together as Members of the Section, those interested in flying, to give instruction in flying, to provide and maintain a number of single-seat and two-seat dual-control aeroplanes for the use of its Members, and to help those interested to obtain a knowledge of the construction, maintenance, repair and running of aeroplanes.

Aeroplanes will be provided on which Members will be given instruction in flying by Certificated Pilot Instructors. This instruction will be available until the Member has passed the necessary tests to qualify him for an Aviator's Certificate, which in turn will qualify him for the Air Ministry "A" Licence.

Two-seater and Single-seater Aeroplanes will be provided by the Section for the use of Members holding the Air Ministry "A" Licence.

The Aeroplanes will be at an Aerodrome in the London Area, possibly Hendon or Brooklands. [As THE AEROPLANE goes to press it is announced that the Air Ministry has sanctioned the use of Hendon Aerodrome.]

Pilot Instructors, Ground Engineers and Mechanics to give flying instruction and maintain the aeroplanes will be provided and they will form a permanent staff.

In order to meet the expenses of Aerodrome, Damage to Aeroplanes, Maintenance and Personnel it is proposed to make the charges as hereunder.

The Membership will be divided into two categories:—

A. FULL MEMBERSHIP—THREE GUINEAS PER ANNUM. For those who wish to take instruction in flying or those who, being qualified, wish to use the aeroplanes.

B. ASSOCIATE MEMBERSHIP—ONE GUINEA PER ANNUM. For those who wish to obtain knowledge of construction, maintenance, repair and running of aeroplanes and take an interest in and support Aviation by attending at the Aerodrome and having passenger flights.

It is not yet possible to give a definite figure for charges for flights as it depends on the type of Aeroplanes acquired, but roughly these will be as follows:—For Two-seaters Dual Control the charge will not exceed £1 10s. per flying hour. This charge will include the cost of instruction, oil and petrol, damage to machine and third party insurance.

For Single-seaters the charge will not exceed £1 per flying hour. This charge will include the cost of oil and petrol, damage to machine and third party insurance.

Rules as to the general working of the flying on the Aerodrome will be announced later.

Membership badges will be issued to all Members to give free admittance to the Aerodrome.

The scheme can be extended and possibly charges reduced, but this depends entirely on the amount of support given by those who have already expressed a wish to join an organisation which can give facilities for developing and popularising flying.

It is hoped in the event of sufficient support being received to have the aeroplanes available for use by Mar. 31 next.

Those interested in the scheme should apply to the Secretary, The Royal Aero Club, 3, Clifford Street, London, W.1.

PERSONAL NOTICES.

IN MEMORIAM.

SWAN.—In memory of Charles Atkin Swan, O.B.E., B.A. (Oxon), M.B., B.Ch., M.R.C.S., L.R.C.P. (Lond.), F.R.G.S., F.R.P.S. (late President), Founder of the first Flying Corps Hospital in London, the beloved husband of Veronica, who passed on Dec. 13, aged 60 years, fortified with all the Rites of Holy Church. R.I.P.

FORTHCOMING MARRIAGE.

GILLEY—STOCKEN.—The engagement is announced between Flt. Lt. Denys Gilley, D.F.C., R.A.F., younger son of James Broad Gilley, of Grand Hotel, Torquay, and Kathleen Beynon, only daughter of Mr. and Mrs. Charles B. Stocken, of 75, North Gate, Regent's Park, N.W.

BIRTHS.

ANDERSON.—On Dec. 10, at 41, Manchester Street, W.1, to the wife of Flt. Lt. W. F. Anderson, D.S.O., D.F.C., No. 39 Sqdn., R.A.F. (late 55 Sqdn)—a son.

COOK.—On Dec. 8, at Hampstead, to Joy, wife of R. W. H. Cook, Esq., R.G.A. and R.A.F.—a daughter.

ST. JOHN.—On Dec. 7, at Brookfield, Petrie Road, Lee-on-Solent, to Elsie, wife of Flg. Off. Harold W. St. John, D.F.C., R.A.F., Gosport—of a son.

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INCORPORATING AERONAUTICAL ENGINEERING

Edited by
C. C. Grey

14 1925

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Registered at the G.P.O. as a Newspaper.

THE LINE OUT.



ABOUT TO PURSUE:—The start of the John L. Mitchell Trophy Race at the Dayton Meeting in the United States. The machines are Curtiss P.W.8s with 460 h.p. Curtiss D 12 H.C. engine. The average speed of the winner, Lt. Cyrus Bettis was 175.45 m.p.h. The average speed of the eleven finishers worked out at 171.54 m.p.h. over the course of 124.27 miles.

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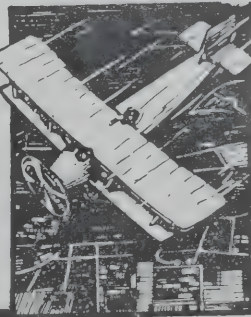


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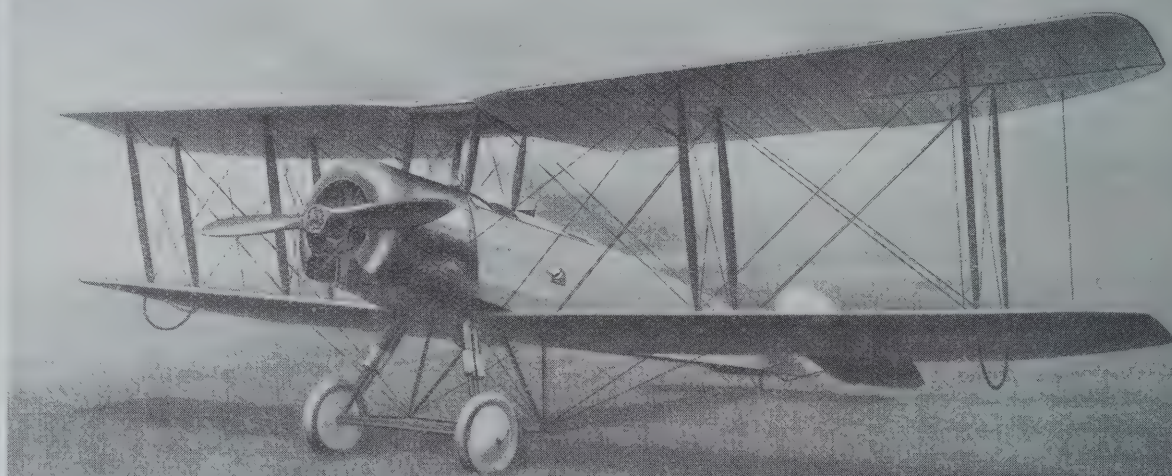
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The AVRO 504, Mark II, is remarkable for its manoeuvrability and ease of control,

and its great structural strength combined with these qualities makes it a safe machine in every sense of the word. The wonderful flying qualities of the machine from which it has been developed (AVRO 504K) are known to all to whom flying means anything, and these qualities have been retained and enhanced in its successor, the AVRO 504K, Mark II.

The Standard AVRO 504K, Mark II, carries pilot and one pupil. It can, however, be adapted, as a small commercial machine, to carry pilot and two passengers if required. It should be noted that the majority of the parts of the 504K and 504K, Mark II, are interchangeable.

Engine—Gnome Monosoupape 100 h.p. Rotary Type. The 110 h.p. Le Rhone or 130 h.p. Clerget may be fitted as alternatives.

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Foreign 3 months, 8s. 9d.; 6 months, 17s. 6d.; 12 months, 35s. Canada, 1 Year, \$5.
U.S.A., 1 Year, \$8 50c.

ON THE SERVICE AGREEMENT.

In his foreword to *The Halton Magazine*, published for the benefit of boys who are in training there to become aircraftsmen, Air Marshal Sir H. M. Trenchard, G.C.B., D.S.O., says:—

"The past year has been marked by the steady development and expansion of the Royal Air Force. It has also been notable for the settlement, on a basis acceptable to both Services, of the long-standing controversy with the Admiralty as to the Fleet Air Arm."

It seems well at the end of the year to quote this message of peace on earth and goodwill towards men. It is good to see that the tried leader of our First Line of Defence (and Offence) has accepted as an accomplished fact the agreement with the Navy.

SERVICE LOYALTY.

The loyalty of the Royal Air Force to the Senior Services has never been open to question. After the amalgamation of the R.N.A.S. and R.F.C. into the R.A.F., the Royal Air Force people on land fought and died for the Army as loyally as if they had been of the Army themselves. And the sea-going people of the R.A.F. did their duty by those who go down to the sea in ships, escorting convoys far out to sea on land-going machines and doing, with better effect for the men and material employed than was ever possible for the Navy itself, the work which should have been done by the Navy.

Since the Armistice in 1918 the R.A.F. has been more than loyal in its co-operation with the Senior Services. The Army Co-operation at home, in India, and in Iraq has been splendid. And that work and the work of the R.A.F. proper has been hampered by the fact that for three years almost every penny available for new aircraft has been spent on new types for the Fleet Air Arm, with the result that the Fleet has now more aircraft than it can possibly accommodate.

The Army has accepted that co-operation in the same spirit of loyalty. The Navy, as anybody knows who has had to do with fleet manœuvres or with the annual bombing experiments, at first did everything it could to show its contempt of the R.A.F. Then, when the naval chiefs were finally convinced that the Fleet Air Arm is a necessity to the existence of a fleet at sea, they set to work and by persistent intrigues and agitations in certain sections of the press brought about the agreement to which Sir Hugh Trenchard has referred.

THE GREAT AGREEMENT.

That agreement amounts in practice to handing over all aircraft and aircraft personnel which may be required in the future for work with the Fleet at Sea entirely to the control of the Navy. Under this agreement officers and men of the R.A.F. detailed to the Fleet Air Arm will in a few years find themselves so outnumbered by Naval Officers who have been taught all about air work by the R.A.F. that they will be squeezed into insignificant positions and will lose many chances of distinction and promotion. That is, unless they manage to get back to service with R.A.F. units which are devoted to Air War as such.

Unfortunately it is probable that such officers and men after a few years' service with the Navy will have lost touch with the strategy and tactics of air war and will be out of date in their knowledge of the machines used in such warfare. And it is extremely unlikely that even if they wish it such R.A.F. personnel will be permitted to transfer to the Navy with their R.A.F. rank and seniority.

Be that as it may, the Air Ministry at any rate is abiding faithfully by its agreement with the Navy and is not in any way stirring up anti-Navy agitation. It is not even stirring up pro-R.A.F. propaganda.

NAVAL TACTICS.

Even in quite small details the Air Ministry is showing its loyalty to the Admiralty. For example, shortly after one's return from the United States one was informed by a somewhat perturbed member of the Publishing Department of THE AEROPLANE that the Air Ministry, which hitherto had

purchased each week a few dozen copies of THE AEROPLANE for distribution from the Air Ministry to certain R.A.F. units, had cancelled the order for those copies. By a little inquiry through devious channels, or, as Mr. Lloyd George might put it, by exploring various avenues, one discovered that this order had been cancelled because the Admiralty resented certain remarks in THE AEROPLANE published on Sept. 17, 1924, under the heading "On the Admiralty's Affliction."

In that article one drew attention to the fact that with the reassembling of Parliament the daily news-sheets had broken out in a rash of pro-Navy anti-R.A.F. agitation, the latest exhibition of it being a sensational screed in *The Daily Express* headed "Fleet Air Arm Crisis." THE AEROPLANE also pointed out that *The Morning Post* was suffering from a recrudescence of its chronic anti-Air Force irritation. Thereafter the article indicated that there is a certain faction in the Admiralty which in spite of its having treated aircraft with contempt during the War 1914-18 now wants complete control not only of the Fleet Air Arm but of all sea-air patrols working from the shore.

Apparently representations had been made to the Air Ministry that such an article was calculated to stir up ill-feeling between the Navy and the Air Force and that by circulating among Air Force units at the expense of the Air Ministry, which means at the expense of the Government, a paper which publishes such controversial articles the Air Ministry was in fact acting in a manner contrary to the spirit of the agreement between the Admiralty and the Air Ministry.

Therefore the Air Ministry, in its loyalty to the Admiralty, very properly cancelled the official issue of THE AEROPLANE to those units, regardless of the fact that the practical and technical information published every week in this paper has been for many years, in fact since before the outbreak of War in 1914, considered by the highest officials of the Flying Services to be of considerable educative value to the personnel of those Services.

Personally one quite agrees with the action of the Air Ministry in this matter. It made its agreement with the Admiralty and it is keeping it in the spirit and in the letter. So far as the influence of THE AEROPLANE in the Royal Air Force is concerned the cancellation of this order makes no difference whatever, for those same units still receive their copies every week direct from our Publishing Department, and perhaps get them a day or two sooner than if they were distributed with other documents from the Air Ministry.

Financially the effect is to add perhaps twenty-five or thirty shillings a week to the cost of running THE AEROPLANE newspaper or, to put it the other way, the revenue of the paper is decreased by that amount.

Such then is the extent of this latest naval victory. It is about equal in effect to some of the victories which were won at vast cost of life and money during the War 1914-18 by the British Navy.

On the other hand one accepts rather as a compliment the fact that a paper which has been struggling so hard for existence during the past few years should be considered so well worth the attention of the highest officials of two of our great Fighting Services. One's only regret is that so trivial a matter should have occupied time which might have been so much better spent in promoting the efficiency of at least one of those Services. Nevertheless it is satisfactory to know that in the estimation of the Admiralty the influence of THE AEROPLANE is so great.

ANTI-AIR FORCE PROPAGANDA.

There is, however, another side to this question. While the Admiralty brings its big guns to bear on decreasing by a few shillings the revenue of THE AEROPLANE, very much as the British Navy used its heaviest guns to abolish fishermen's huts and summer hotels along the Belgian coast from 1914 to 1918, the Navy is still carrying on, not particularly subtly but certainly with the tenacity of the old bull-dog breed of which the Navy is so proud, persistent propaganda, ostensibly

in favour of the Navy but actually against the Royal Air Force.

The latest manifestations in this direction are two articles in *The Morning Post*, one entitled "An Air Branch of the R.N.R." (Royal Naval Reserve) and the other "An Air Branch of the R.N.V.R." (Royal Naval Volunteer Reserve). The former is composed of the professional seagoing personnel of the mercantile marine and the latter of amateurs, such as yachtsmen, longshoremen, and such.

Like all the anti-Air Force propaganda in *The Morning Post* these articles are so superficially convincing that the Air Force might well be concerned about their effect if the events of the past five or six years had not consistently shown that the gallant old *Morning Post*, the last refuge of the Die-Hards and most honest of newspapers, is so persistently the home of lost causes.

So successful has *The Morning Post* been in backing losers that one may almost safely lay against its selections in the race of historical events. Be it said, it never deliberately tips a wrong 'un. And its selections almost always run into a place. But it never seems to spot a winner.

Even the great Conservative victory in the last election though it might be considered a triumph for *The Morning Post* must in fact be gall and wormwood in its results for does not the new Cabinet include *The Post's* two pet aversions, Mr. Winston Churchill and Lord Birkenhead?

Some great financier once publicly attributed his success to the fact that he always refused to have anything to do with a man who was unlucky. Somewhat on the same lines, one is prepared to stake one's reputation against the Navy's success in running a Naval Air Service simply because its propaganda is supported by such astonishingly unlucky prophets.

THE NAVY'S OWN AIR SERVICE.

So far as the Fleet Air Arm is concerned one is quite prepared to advocate handing it over to the Admiralty, so long as the many friends whom one has among the sea-going personnel of the R.A.F. are given a fair chance of standing from under before the crash comes or of getting out before the ship sinks—whichever metaphor they care to adopt. Few things could add more to the gaiety of nations than a Fleet Air Arm run entirely by the Navy.

It would be highly ornamental in time of peace. And in the course of the Fleet's joy-rides round the World showing the Flag the little bit of flying done by the Fleet Air Arm would serve to enthuse the local populace and would cost very little. At any rate it would cost nothing to the Air Force and whatever it cost the Navy would advertise aviation as such and we should be that much to the good.

But the real points at issue are distinctly grave. Firstly there is the disloyalty of some person or some section in the Admiralty who or which in spite of the Agreement is inspiring these articles against the Air Force. And secondly there is the danger that in giving the Admiralty control of the Fleet Air Arm and with it control of the shore stations of the R.A.F., at which the personnel of the Fleet Air Arm are trained, we may also allow the Admiralty to get control of the coast defence air work. It is precisely this control at which *The Morning Post* articles on the R.N.R. and the R.N.V.R. are evidently aimed.

THE R.N.R. AND THE R.N.V.R.

In the article on the R.N.R. *The Morning Post* points out that "a very large percentage of the personnel employed in safeguarding the sea routes in the late War consisted of that part of our seafaring population which spends a lifetime on those routes—the officers and men of the Mercantile Marine who belong to the Royal Naval Reserve." With this one agrees. And one would add that such success as was obtained was almost entirely due to the Mercantile Marine, who hate the Navy to-day with a hatred which one would never have believed if one had not talked War to the officers of Atlantic liners.

The writer of the article further points out that among the various forms of naval air duties there are two well-defined categories, those which must be performed by active service ranks and ratings (1. Fleet air work. 2. Naval air intelligence. 3. Air attack of enemy warships) and those which can and even preferably should be performed by the reserve forces of the Navy (4. Air patrol of or reconnaissance over ocean routes. 5. Air escort of shipping in narrow waters and in the approaches to our ports.).

The article then goes on to advocate the formation of a Royal Naval Air Reserve and confines itself to aeroplane work, specifically excluding airships. Furthermore the article points out that it has been impossible to make R.N.R. officers into gunnery, torpedo or signal specialists but that this limitation need not apply to air work.

Evidently the whole subject has been thoroughly thrashed out at the Admiralty, for *The Morning Post*, obviously inspired, says: "There seems considerable consensus of opinion

that the best time for a Naval Air Reserve course would be just after an officer has taken his Second Mate's certificate." The question is discussed in such detail that the article can only have been compiled as the result either of direct inspiration from the Admiralty or at any rate in close consultation with naval officers of considerable standing.

One has the greatest respect for the naval correspondent of *The Morning Post* on account of his intimate knowledge of the Navy and its manners and customs. But one cannot believe that any newspaper man entirely off his own bat can lay down a complete organisation for a reserve branch of Fighting Service. One has one's own ideas on the subject of the R.A.F. Reserve and Auxiliary Forces but one would not pretend to lay down the organisation as this proposed Naval Air Reserve organisation is set forth in *The Morning Post*.

The article on the R.N.V.R. is in fact linked to that on the R.N.R. Apparently the idea is that R.N.R. personnel should be used for patrolling ocean routes and more distant shipping lines, though they may be near the coasts of our Overseas Dominions, and that R.N.V. Air Reserve personnel, being drawn from the same stay-at-home classes as the R.N.V.R., shall have committed to their tender care the convoy of shipping in home waters.

The writer of the article is good enough to say that it is not his "intention to ignore the Royal Air Force." He admits that the primary duty of the R.A.F. is the air defence of this country and apparently to him that is the be-all and end-all of the existence of the R.A.F. Seemingly he does not envisage a war in which the R.A.F. will be the spear-head of our attack as well as the main support of the Army in the field and of whatever part of the Fleet may participate in war-like operations.

A NATIONAL DANGER.

In other words the whole trend of these articles, which if not actually inspired by the Admiralty as such are so evidently influenced by naval officers who have in their hearts bitter hatred not only of the Royal Air Force but of those able officers who have made the Air Force what it is in spite of the Navy, is a proposal to make the R.A.F. into a little hole-and-corner Service purely for defence against air attacks on the British Isles and to commit the safety of this country and the assurance of the food supplies of the population to naval officers who were proved in the last war to be utterly incompetent.

The coasts of Great Britain are to-day still littered with the wrecks of food ships which were sunk by German submarines. The fact that they were so sunk is undoubtedly evidence of the gallantry and initiative of the German Navy, but it is also a ghastly proof of the stupidity and incompetence of the British Navy.

Leaving out of the question the sinking of the *Lusitania* because she was deliberately left without escorts: leaving out the sinking of the Irish mail steamer *Leinster* because the Navy refused escorts to His Majesty's mail boats: leaving out the sinking of all those supposedly convoyed ships in the Mediterranean because of naval incompetence: there is still the fact that the Admiralty ignored the Royal Naval Air Service and not merely took no trouble to develop air escorts in home waters but actually did all they could, after the departure of Mr. Winston Churchill from the Admiralty, to prevent the development of the Naval Air Service.

Those units of the Fleet operating against the Belgian coast refused to take their gun-spotting from the units of the R.N.A.S. The naval authorities in our harbours along the coast refused to give information to R.N.A.S. shore patrol stations which would enable them to protect incoming food ships and outgoing munition ships.

Not only did the Admiralty as such and the personnel of the Navy ignore aircraft and openly despise aircraft but they actually did all they could to hamper the use of aircraft.

At last some of the younger and less ossified brains of the Navy have discovered that unless the Navy possesses its own Air Service the end will be that the Royal Air Force will possess its own Navy. That is what is behind all this subtle propaganda in our more dignified papers and these periodical outbursts in our more sensational papers suggesting that things are wrong with the Royal Air Force. This is the Admiralty's idea of abiding loyally by the settlement to which Sir Hugh Trenchard has referred. The Air Staff has been in every way as straight and as honest in its dealings with the Admiralty as becomes officers and gentlemen of the King's Service. The Admiralty has never dealt honestly with the Royal Air Force and it never will.

AN R.A.F. POLICY.

It seems therefore that there is only one possible policy for the Air Ministry. That is to let the Navy have its own Fleet Air Arm and do what it likes with it. In the words of Kipling's Admiral let it conduct its own manœuvres in its own

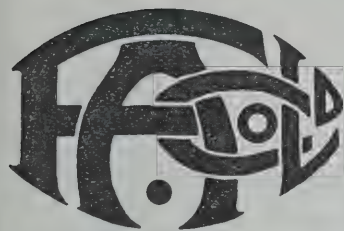
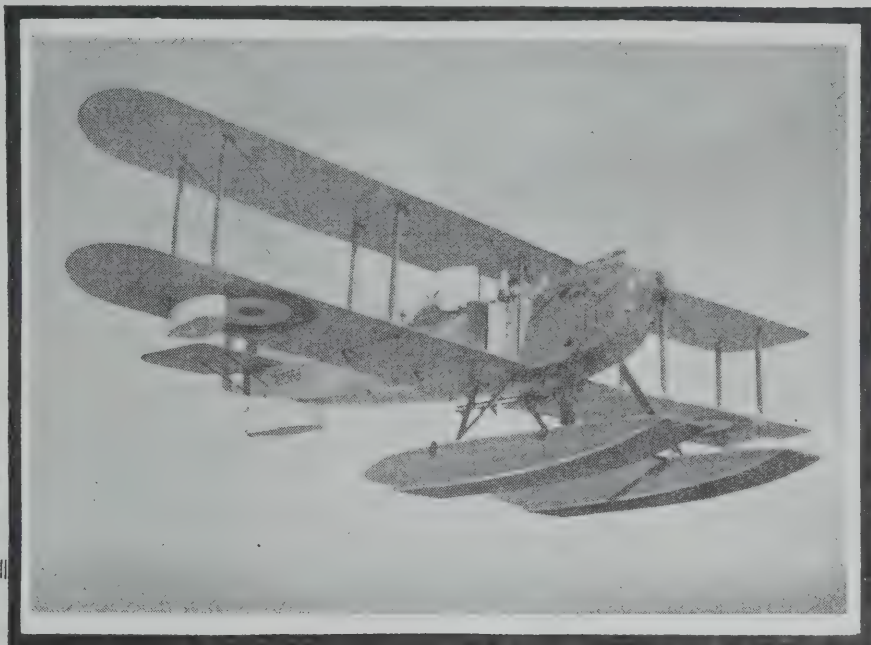
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damned tinker fashion. (Its own language may be understood by the Navy).

Let the Air Ministry hand over everything to do with the Fleet at Sea to the Navy. Let the Air Ministry withdraw all R.A.F. personnel from the Navy. Let the Navy train its own people if it can in its own fashion. Let the Navy have its own shore aerodromes and organise its own coast patrols if it can. And let it be remembered that when after many years the Navy had demonstrated its incompetence in the matter of handling coast-defence guns all the coast artillery was taken away from the Navy and handed over to the Garrison Gunners.

But the people of this country can take as certain knowledge the fact that just as it would have failed to save this country from starvation in 1918 if it had not been for the work done by the Royal Air Force, so the Navy will fail when it has its own Air Arm.

Therefore the Royal Air Force must in its own interests keep on developing sea-going aircraft for shore patrols. It need not bother about deck-flying machines. That branch of aviation is little use in any case. It is mere waste of time and money when it is possible to patrol all the water within 200 miles of a coast-line from properly-equipped aerodromes ashore.

Let the Navy have their deck-flying machines. They will keep them amused and will keep them from doing further mischief. But let the R.A.F. see to it that they are prepared to protect our shipping in the next war when the Navy has failed.

COMPETITION AND THE FUTURE.

Competition is good for trade. Some few bright engineering brains in the Navy will probably develop useful ideas of aircraft just as the R.N.A.S. before 1914 and in the early days of the War developed ideas which saved the R.F.C. We shall be that much to the good because the R.A.F. in general and the Air Ministry Technical Department in particular somewhat deficient in engineering brain-power.

It will be good for the Aircraft Industry if the Admiralty is allowed to cut loose, because then we shall have the R.A.F. and the Navy competing for aeroplanes and engines. If two Services are to have separate operations departments obviously cannot have the same technical and buying departments. Therefore with two separate Services the Trade will make considerably more money than it would otherwise.

Also there will be more money to spend, because the R.A.F. Vote will certainly not be decreased and therefore whatever the Navy spends will be so much extra out of the Navy Vote to be absorbed by the Aircraft Industry. On that score of course one is all in favour of two separate Services, or three or four or more if possible. The more the merrier.

But the one great objective to be kept in view by the Air Ministry is that it will be the task of the Royal Air Force in the next war not merely to protect these islands against hostile aircraft, not merely to fight battles in the air and win decorations, not merely to do the air work of the suffering line man in the firing line, but to assure to this country the food supplies which must be brought to it by sea. The Navy must not let us down once. It must never happen again.—C. G. G.

THE ROYAL AIR FORCE.

The London Gazette.

Dec. 16.

GENERAL DUTIES BRANCH.—The following Flt. Lts are granted perm. comms. in the rank stated (Dec. 17):—F. Fernibough, M.C., C. B. Riddle.

Plt. Off. A. G. S. Tuke is promoted to the rank of Flg. Off. (Dec. 14); Flt. Lt. P. A. de Fontenay is transferred to the Reserve, Class C. (Dec. 18); Flt. Lt. A. C. Sanderson, D.F.C., is placed on half-pay, Scale B, from Nov. 15, 1924, to Nov. 25, 1924, inclusive (substituted for notification in *Gazette* of Nov. 11); Flt. Lt. K. A. Lister-Kaye is placed on the retired list (Dec. 17).

STORES BRANCH.—The following are granted perm. comms. in the ranks stated (Dec. 17):—Flt. Lt. H. E. Tansley, M.C. (Lt., Ches. Regt.); Flg. Off. L. J. V. Bates.

ACCOUNTANT BRANCH.—Flg. Off. R. G. D. Thomas is granted a perm. comm. in the rank stated (Dec. 17). The following are granted perm. comms. as Plt. Offs. on probation with effect from Dec. 3 and with seniority of Nov. 10:—A. E. West, J. R. Thomas, S. C. George, S. W. Hill, R. W. Collinson, L. M. Spicer, R. C. Dickinson.

MEDICAL BRANCH.—B. W. Cross is granted a S.S. comm. as a Flg. Off. with effect from, and with seniority of, Dec. 4.

RESERVE OF AIR FORCE OFFICERS.—The following are granted comms. on probation in the General Duties Branch in the ranks stated (Dec. 16):—**CLASS A: FLG. OFFS.**—L. C. Burcher, A. T. Daw, J. J. Flynn, J. H. Halliwell, J. A. Middleton, M.C., J. E. Sitch. **PLT. OFFS.**—E. H. Bird, A. D. M. Blair, T. E. Greenough, E. F. D. Gregory, H. Jones, H. Lyne, A. M. Mackay, F. Middleton, G. H. Smith, B. Spaven, J. H. Taylor, M. A. Vachon, K. C. Whitwell. **CLASS B: PLT. OFFS.**—E. T. Shone, D. M. Tomlinson.

The following are confirmed in rank:—**FLG. OFFS.**—C. St. C. Parsons (Nov. 20); C. K. Robinson (Nov. 25); C. S. Emery (Dec. 10). **PLT. OFFS.**—J. Hall (Nov. 20); R. K. Harvey (Dec. 10).

The following are transferred from Class A to Class C:—**FLG. OFFS.**—A. W. Saunders, D.F.C. (Dec. 16); J. Hart (Dec. 16). **PLT. OFF.**—J. Woods (Sept. 14).

PRINCESS MARY'S ROYAL AIR FORCE NURSING SERVICE.—Miss B. Hamilton resigns her appointment as Staff Nurse (Sept. 22).

Appointments.

* Week ending Dec. 22.

GENERAL DUTIES BRANCH.—Wing Commander E. M. Murray, D.S.O., M.C., to R.A.F. Depot on transfer to Home Estab., 12/11; to R.A.F. Cadet College, Cranwell, pending taking over duty as Assistant Commandant, 15/12.

Squadron Leaders T. H. England, D.S.C., A.F.C., to R.A.F. Depot on transfer to Home Estab., 14/11. E. D. Johnson, A.F.C., to R.A.F. Cadet College, Cranwell, 27/11. G. S. Trewin, A.F.C., to No. 5 Armoured Car Coy., Iraq, 5/12. E. W. Norton, D.S.C., to No. 6 Armoured Car Coy., Iraq, 5/12. W. B. Farrington, D.S.O., to Basrah Group H.Q., 17/11. R. P. Wilcock, to No. 216 Sqdn., Egypt, 2/11.

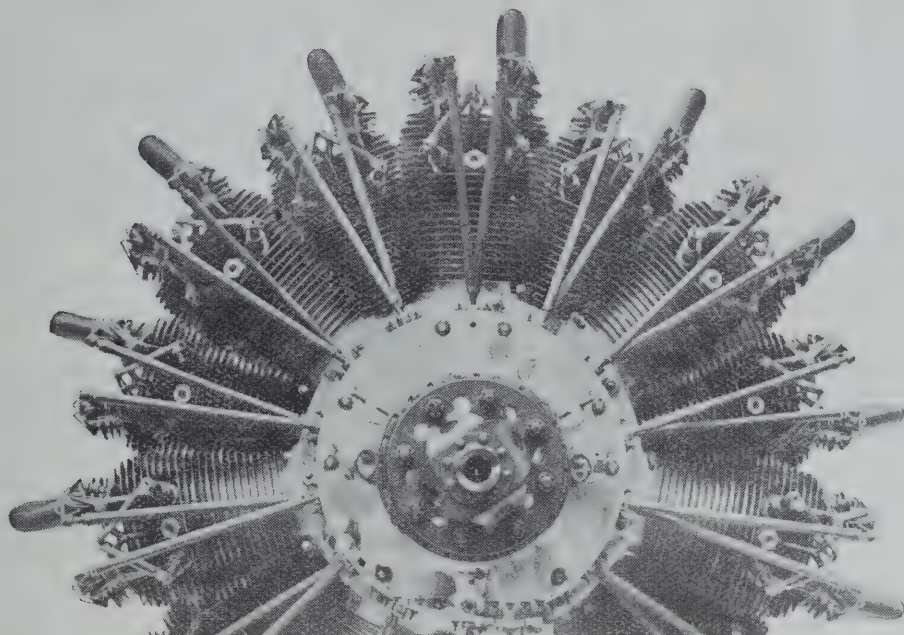
Flight Lieutenants J. F. Lawson, A.F.C., and F. Thomasson, D.F.C., M.M., to H.Q., Iraq, 5/12. D. Colyer, D.F.C., to Stores Depot, Iraq, 5/12. R. S. Aitken, M.C., A.F.C., to H.Q., Malta, 22/11. A. G. Bond, A.F.C., to R.A.F. Depot on transfer to Home Estab., 12/11. E. F. Waring, D.F.C., to R.A.F. Depot on transfer to Home Estab., 4/12. H. C. Todd, and A. A. Ward, to No. 5 F.T.S., Sealand, 29/12. H. P. Walker, M.C., D.F.C., to No. 32 Sqdn., Kenley, 15/12.

Flying Officers H. G. P. Ovenden, to No. 99 Sqdn., Bircham Newton, 5/12. H. C. Black, to I.A.A.D., Henlow, 16/12. C. McC. Vincent, D.F.C., to Experimental Section, R.A.F., S. Farnborough, 5/11. W. A. B. Buscarlet, to R.A.F. Cadet College, Cranwell, 29/12. A. A. N. D. Pentland, M.C., D.F.C., to C.F.S., Upavon, 16/12. (Hon. Flt. Lt.) A. W. Bates, and A. W. Daly, to No. 11 Sqdn., Netheravon, 29/12. W. N. L. Cope, and (Hon. Flt. Lt.) C. W. Croxford, D.S.C., to No. 2 F.T.S., Digby, 29/12. R. I. Bateman, and H. M. Schofield, to No. 24 Sqdn., Kenley, 29/12. R. S. Barbour, to No. 39 Sqdn., Spittlegate, 29/12. N. C. Seward, S. T. Littleton, H. J. Brown, W. R.

Day, J. K. Smith, R. P. Mollard, and G. C. Sclater, to R.A.F. Depot on transfer to Home Estab., 12/11. V. H. Clift, to R.A.F. Base, Malta, 6/11. W. P. Wiltshire, to No. 27 Sqdn., India, 21/11. A. F. Ingram, to R.A.F. Depot (School of P.T. and Drill), 7/11. W. J. Bray, to No. 1 Stores Depot, Kidbrooke, 20/12. A. E. Giddon, D.S.M., to I.A.A.D., Henlow, 1/11. A. L. Harris, to School of Army Co-operation (No. 1 Sqdn.), Old Sarum, 5/11. R. S. Blucke, to No. 29 Sqdn., Duxford, 5/11. C. H. Johnson, to Aircraft Depot, Iraq, 5/12. H. V. David, to No. 1 Sqdn., Iraq, 17/11. G. A. Kysh, to No. 4 Armoured Car Coy., Iraq, 5/12. A. T. Iaing, to No. 47 Sqdn., Egypt, 11/11. F. T. Ead



AT HALTON.—Air Chief Marshal Sir Hugh Trenchard inspecting Aircraft Apprentices.



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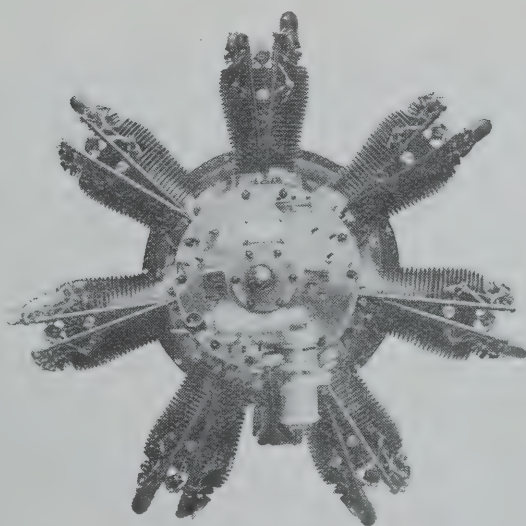
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Oil consumption, '03 pts./
b.h.p. '017 Litres per
b.h.p. hour.
Weight complete,
460 lbs., 209 kgs.

D.F.C., to H.Q., Palestine, 18/10. F. P. Adams, to No. 208 Sqdn., Egypt, 24/11. G. H. Huxham, to No. 203 Sqdn., Egypt, 21/11.

Pilot Officers G. N. J. Stanley-Turner, to No. 208 Sqdn., Egypt, 5/12. A. R. Perry, to Armament and Gunnery School, Eastchurch, 24/11.

STORES BRANCH.—Squadron Leaders T. Fawdry, M.B.E., to Air Ministry, 27/11. P. M. Brambleby, to R.A.F. Depot, 20/12. Flight Lieutenant F. J. W. Humphreys, to No. 3 Armoured Car Co., Iraq, 9/11. Flying Officers R. W. Stewart, to No. 14 Sqdn., Palestine, 18/10. L. H. Hillier, to No. 45 Sqdn., Iraq, 5/12. G. E. Pyne, to No. 1 Stores Depot, Kidbrooke, 20/12.

ACCOUNTANT BRANCH.—Squadron Leader T. H. Evans, to H.Q., Egypt, 6/12. Flying Officers A. C. Lobley, to No. 8 Sqdn., Iraq, 6/11. J. Freeman-Fowler, to No. 4 Armoured Car Coy., Iraq, 8/10. W. E. Ennis, to No. 4 F.T.S., Egypt, 28/11. Pilot Officers C. E. Aston, H. J. Titherington, K. E. M. Holmes, J. McL. Murray, C. F. Goatcher, C. Lorimer, and E. Smith, to No. 1 Stores Depot, Kidbrooke, 2/12. A. E. West, J. R. Thomas, S. C. George, R. C. Dickinson, S. W. Hill, R. W. Collinson, and L. M. Spicer, to No. 1 Stores Depot, Kidbrooke, for course of instruction on appointment to Permanent Commissions, 3/12.

MEDICAL BRANCH.—Flight Lieutenant H. B. Troup, to Basrah Group H.Q., Iraq, 15/8. J. F. Gallagher, to No. 111 Sqdn., Duxford, 15/12. (Hon. Sq. Ldr.) F. W. Squair, M.B., T.D., to R.A.F. Depot, 18/12. T. J. X. Canton, M.B., to R.A.F. Depot, 30/12. Flying Officer B. W. Cross, to R.A.F. Hospital, Cranwell, 28/12.

CHAPLAINS' BRANCH.—The Revd. J. R. Walkey, M.A., to H.Q., Egypt, 28/10.

The Chief of the Air Staff at Halton.

Air Chief Marshal Sir Hugh Trenchard inspected the first entry of Aircraft Apprentices at Halton, on their passing out on Dec. 17. Of the 399 boys of the January, 1922, entry, 15 passed out as Leading Aircraftmen and 121 as A.C.1s. L.A.Cs. J. Clarke and C. Dicken go as Cadets to Cranwell, eight as corporals for the advanced course and the rest to squadrons.

The day's proceedings started with a parade and march past. Sir Hugh Trenchard was accompanied by Air Commodore C. A. H. Longcroft, Deputy-Director of Personnel, and Sq. Ldr. Nelson, of the Technical Training branch. He was received by the Commandant, Air Commodore C. L. Lambe. Group Captain C. L. Newall, the second in command, took charge of the parade. An inspection of the workshops and school followed, and then Sir Hugh Trenchard went to the gymnasium for the prize-giving.

After the Commandant had read his report the Chief of the Air Staff addressed the boys.

He said that it was a pleasure for him to come to see the first output from the future home of the R.A.F. Very shortly Halton would be the only centre where aircraft apprentices would be trained, with the exception of the wireless centre at Flowerdown. Halton was nowhere near yet what it would become in the future.

He said that he was bitterly disappointed at the results of the examination. Perhaps he expected too much. Still, the number of leading aircraftman and A.C.1s was much too small. He could not help believing that the A.C.2s and the failures could pass in a much higher grade if they were given a further opportunity. He was authorised to say that they would be given another chance, and would be retained there for a further six months, at the end of which time he wanted to see them all, or at least the majority of them, pass out as leading aircraftmen. Nothing else was good enough for the Air Service.

The Air Force was a very young Service, but it had the traditions of the war. Its engines and machines were kept in the air then by the mechanics of those war days, and if the air mechanics of this and the future days could keep the machines in the air for longer periods, then they would have done their share to make the Air Service great. He added that some of the lads passing out now, after a year's

work, would be selected for training as pilots, and would then have a great opening offered to them.

The Cadet College, Cranwell.

Air Vice-Marshal Sir P. W. Game, Air Member for Personnel, inspected the Cadets of the R.A.F. Cadet College at Cranwell on Dec. 16.

At the prize-giving Air Commodore Borton, the station commandant, reported upon the work accomplished during the term. He said that there were 110 Flight Cadets under instruction, of whom 21 were due to pass out. The total flying time for the term was 986 hours 25 minutes. The educational training in workshops had been producing satisfactory results. The Commandant also dealt with the football, beagling, skill-at-arms, physical training, and discipline on the station.

The Sword of Honour was awarded to Flight Cadet Under Officer G. R. Beamish. The R. M. Groves Memorial Prize was awarded to Flight Cadet Corporal S. H. V. Harris. The Abdy Gerrard Fellowes Memorial Prize was won by Flight Cadet Sergeant A. H. W. J. Cocks.

The Fleet Air Arm.

The Times of Dec. 16 states:—

Wing Commander E. D. M. Robertson, D.F.C., R.A.F., who has been appointed Fleet Aviation Officer in the *Revenge* on the staff of Admiral Sir Henry Oliver, has been Deputy-Director of Armament in the Directorate of Research at the Air Ministry. He entered the Royal Navy as a cadet, became a lieutenant in 1907, and specialised in gunnery, but was gazetted a Flt. Lieut. in the first seniority list of the R.N.A.S. on July 1, 1914. Six weeks later he took command of the aircraft-carrier *Riviera* as a Flt. Cmdr., and commanded her during the seaplane raid on Cuxhaven on Christmas Day, 1914. Later in the war, as squadron commander and wing commander, he held commands at the R.N. Air Stations at Grain Island, Kingsnorth and Felixstowe, the last-named as a lieutenant-colonel, R.A.F. In the *Revenge*, he now succeeds Group Captain R. P. Ross, D.S.O., R.A.F., who was also a lieutenant, R.N., before the war. The title of the post has recently been changed from "Fleet Flying Officer."

An Official Lunch.

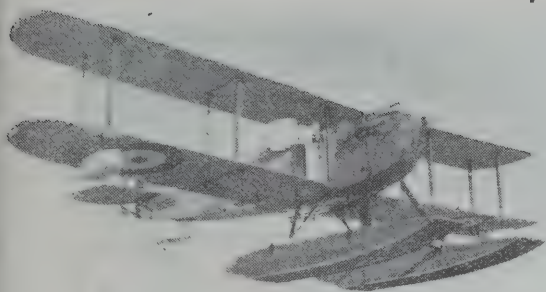
Sir Samuel Hoare, Secretary of State for Air, gave a luncheon at the Ritz Hotel on Thursday to the foreign attachés in London who are responsible for aviation. The attachés present were:—

Captain de Fregata Don Jorge A. Games (Argentina), Lieut.-Col. Don Raul Mones Ruiz (Argentina), Major Don Guillermo Zavala (Chile), Commander Don Edgardo von Schroeders (Chile), Lieut.-Col. Dr. Rudolf Jac (Czechoslovakia), Capitaine De Frégate L. Sablé (France), Captain George Panas, C.M.G. (Greece), Commandant de Squadriglia S. Scaroni, C.V.O., D.F.C. (Italy), Captain Teijiro Toyoda, D.S.O. (Japan), Major-General Ren-ichiro Okamoto (Japan), Colonel Jon Antonesco, C.M.G., C.V.O. (Roumania), Colonel de l'Etat Major Georges Ostoic, K.C.V.O., C.B. (Jugo-Slavia), Colonel Don Fernando Rich (Spain), Colonel E. Mossberg, C.B.E. (Sweden), Commander A. de Bahr, C.V.O. (Sweden), Captain Luke McName (United States), Lieut.-Col. Kenyon A. Joyce (United States), and Major Howard C. Davidson (United States).

From the Air Ministry there were present:—Sir Philip Sassoon, M.P., Air Chief Marshal Sir H. M. Trenchard, Air Marshal Sir John Salmond, Air Vice-Marshal Sir Geoffrey Salmond, Sir Walter Nicholson, Air Commodore J. M. Steel, Sir S. Dannreuther, Mr. H. W. W. McAnally, Air Commodore D. le G. Pitcher, Air Commodore T. C. R. Higgins, Mr. C. I. Bullock, Sir Geoffrey Butler, M.P., Squadron Leader A. R. Boyle, Squadron Leader C. R. Cox, and Flight Lieut. A. Gambier-Parry.



AT CRANWELL.—Air Vice-Marshal Sir Philip Game, behind whom is Air Commodore Borton (Commandant), inspecting officer-cadets.



The Napier— aero engine on Service Abroad

EXTRACT FROM THE "PENANG GAZETTE"

16th October, 1924

"THE *Pegasus* left Hong Kong after a stay of five months in these waters. Her visit to Malaya has been an event of considerable importance and significance from both the naval and civil points of view.

The Fairey seaplanes carried on the *Pegasus* have put in over 400 hours of flying time during their stay here.

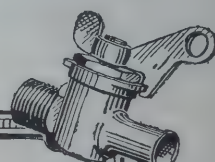
It will be cold comfort to residents of Malaya to learn that 19,000 feet above them there is a temperature of four degrees of frost. This is the maximum height to which the *Pegasus* seaplanes have gone.

There has not been a single engine failure or forced landing since the Pegasus arrived here—a tribute to the 450 H.P. Napier 'Lion' engines with which the seaplanes are fitted."

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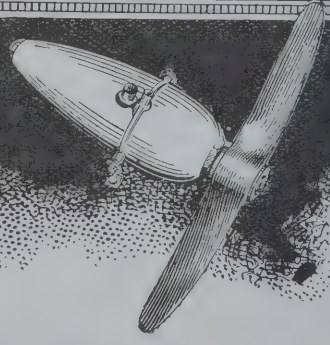
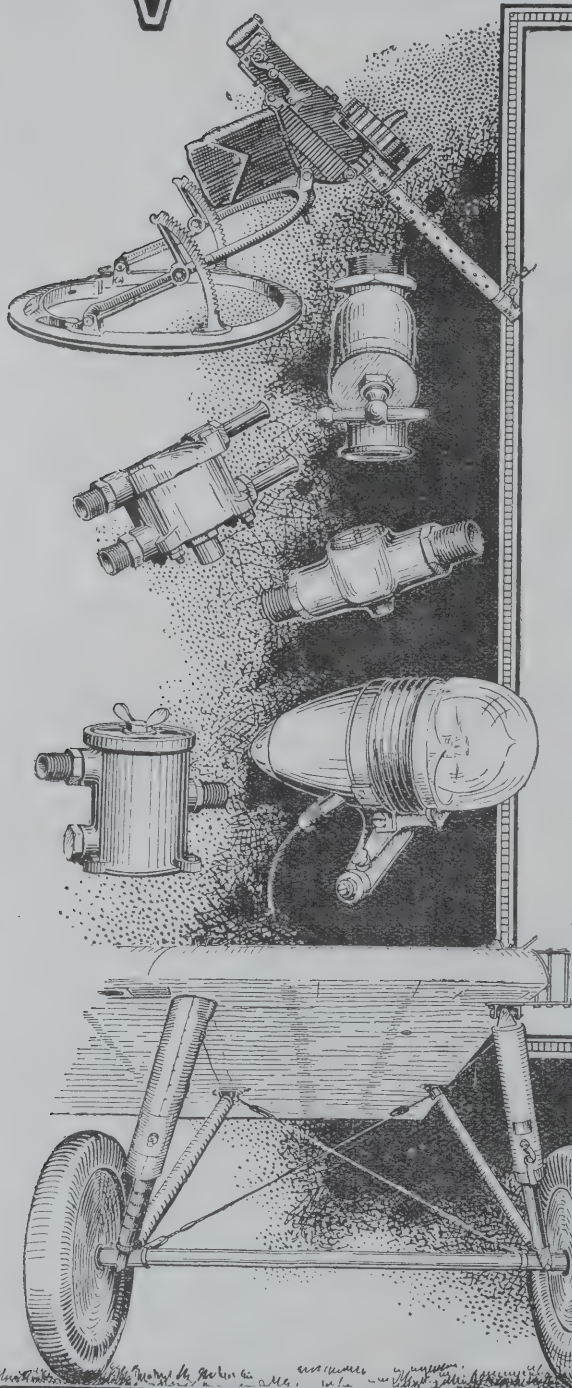
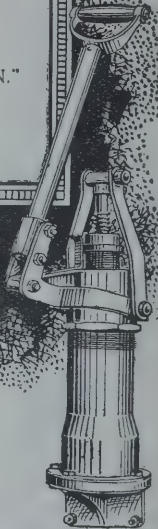
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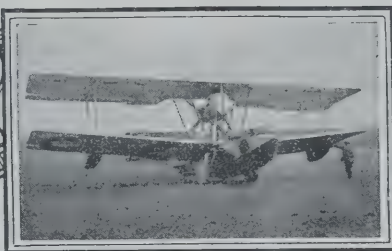
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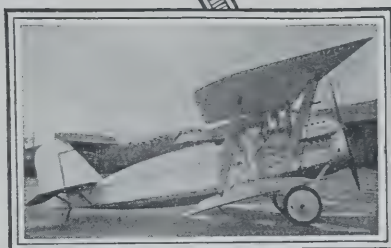
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THE PARIS AERO SHOW.

THE ENGINE EXHIBITS.

[NOTE.—Specifications of all the engines exhibited at Paris are contained in the large Table included in this issue instead of being appended to the following notes on the engines themselves.]

THE AIRCRAFT DISPOSALS CO. Regent House, Kingsway, London, W.C.2.

The A.D.C. show three engines—all of them well known. First and most interesting is the Siddeley Puma of 230 h.p., for which engine, thanks to its remarkable record of reliability in civil aircraft, there is now a world-wide market.

The second is the Wolseley Viper of 210 h.p. This is, of course, an engine based on the 180 h.p. Hispano-Suiza, and generally of the same dimensions, but actually good for well over 200 h.p. The popularity enjoyed in France by the original 180 h.p. Hispano for advanced training, touring, and even for the lighter commercial types suggests that this engine should also command a ready sale abroad.

The third engine is the 230 h.p. B.R.II rotary. This engine is little known outside of England, but it is not only the highest powered rotary that has ever been used to any extent, but it is one of the most satisfactory and reliable of such engines.

The display of stripped components of engines displayed on this stand showed if anything a better workmanship and finish than is to be found in most of the newest of French engines. Recollecting that all A.D.C. material is war-time surplus, this exhibit should greatly enhance the prestige of the British manufacturing industry.

A. ANZANI, 112, Boulevard de Verdun, Courbevoie, Seine.

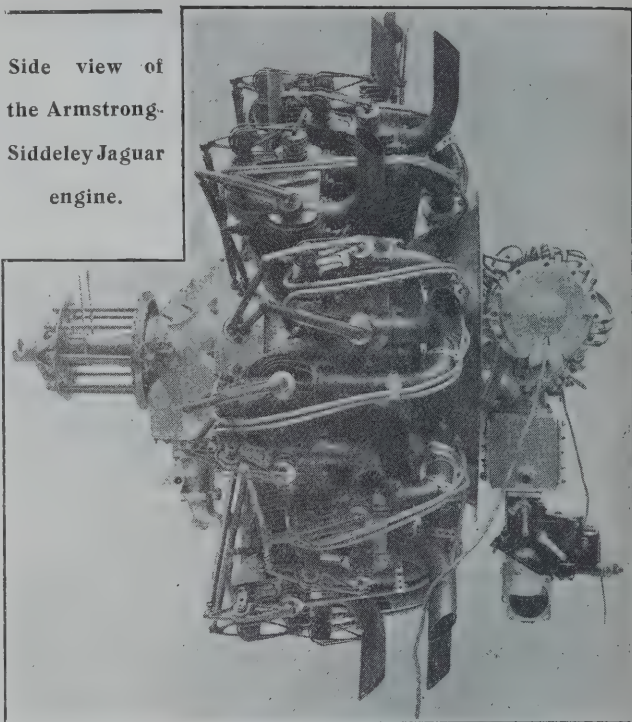
This prolific manufacturer exhibits a complete range of his well-known radial air-cooled type, from the little three-cylinder 25 h.p. engine for light aeroplanes up to a 220 h.p. ten-cylinder engine. Apart from the fact that all Anzani engines now have mechanically operated inlet valves, their general appearance and design remains as it was before the war. As a cheap, simple, and, on the whole, reliable type for school and sporting purposes where a high performance is not required and a fairly high weight per h.p. can be tolerated, the Anzani engine is probably without a rival even to-day.

ARMSTRONG-SIDDELEY MOTORS, LTD., Parkside, Coventry.

The chief attraction on the Armstrong-Siddeley stand—which it should be noted is a separate entity from that of the Armstrong-Whitworth Aircraft Co., Ltd.—is a specimen of the Jaguar IV air-cooled radial engine of 385/425 h.p.

The Jaguar IV differs from earlier types of this engine only in detail, the most important detail being that of ignition. In the first Jaguars a coil and accumulator ignition was used owing to the lack of 14 cylinder magnetos, and a pair of distributors on vertical shafts were mounted on the crankcase front cover. These have now disappeared and

Side view of
the Armstrong-
Siddeley Jaguar
engine.

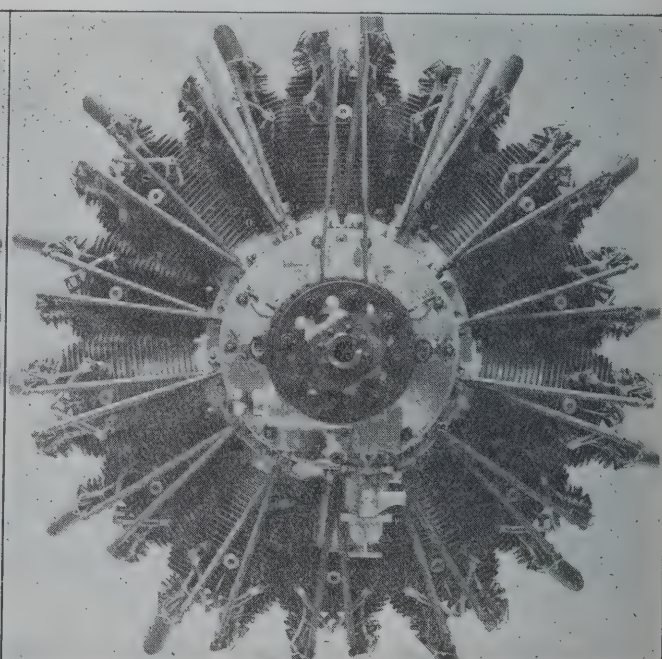
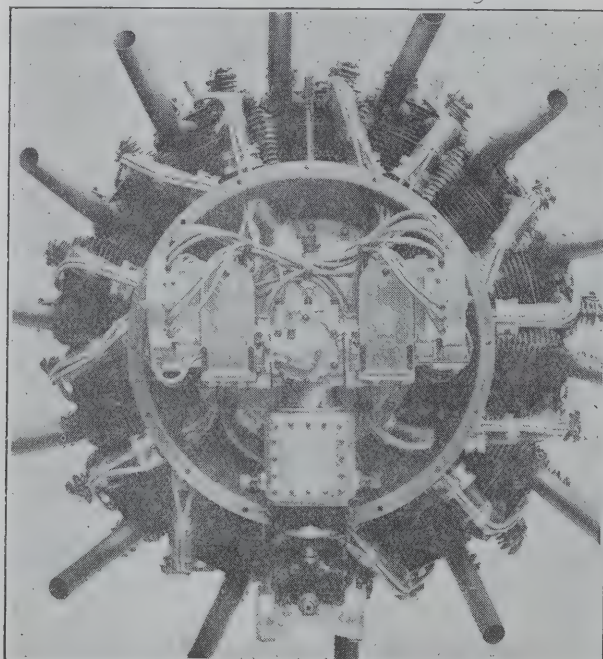


ignition is effected by two 14-cylinder B.T.H. magnetos carried on the back end cover.

In all essentials the Jaguar however retains the characteristics which have several times been described in these pages. The cylinders are arranged in two staggered banks of seven each around a cylindrical crankcase. They are turned from steel billets and are fitted with aluminium alloy heads screwed to the cylinders and locked in place by a threaded steel ring—which is also a cooling fin—screwed up against the head. Valve seats are of bronze expanded into the head, and bronze bushes are fitted for sparking plugs, gas-starter connection and valve stem guides.

The pistons are aluminium alloy with four rings, three above and one below the gudgeon pin, which floats both in piston and in connecting rod.

There is one master rod and big end, with six articulated rods attached for each row of cylinders. The master rod is of channel section, and is pinned by two large-diameter hollow pins to one-half of a split big end. The six auxiliary



Back and front views of the Armstrong-Siddeley Jaguar IV engine, 385/425 h.p.

ROLLS-ROYCE Aero Engines

THE BEST IN THE WORLD

Some extracts concerning the recent flight of 8,500 miles round Australia from "The Aeroplane" of May 22nd, 1924, entitled

"ON THE AUSTRALIAN TRIUMPH"

"A performance which may fairly be claimed as the finest flight in the history of aviation."

"The durability and reliability shown by the Fairey seaplane and the Rolls-Royce engine have established once more the reputation of English aircraft design and material in the esteem of the aeronautical authorities of foreign nations"

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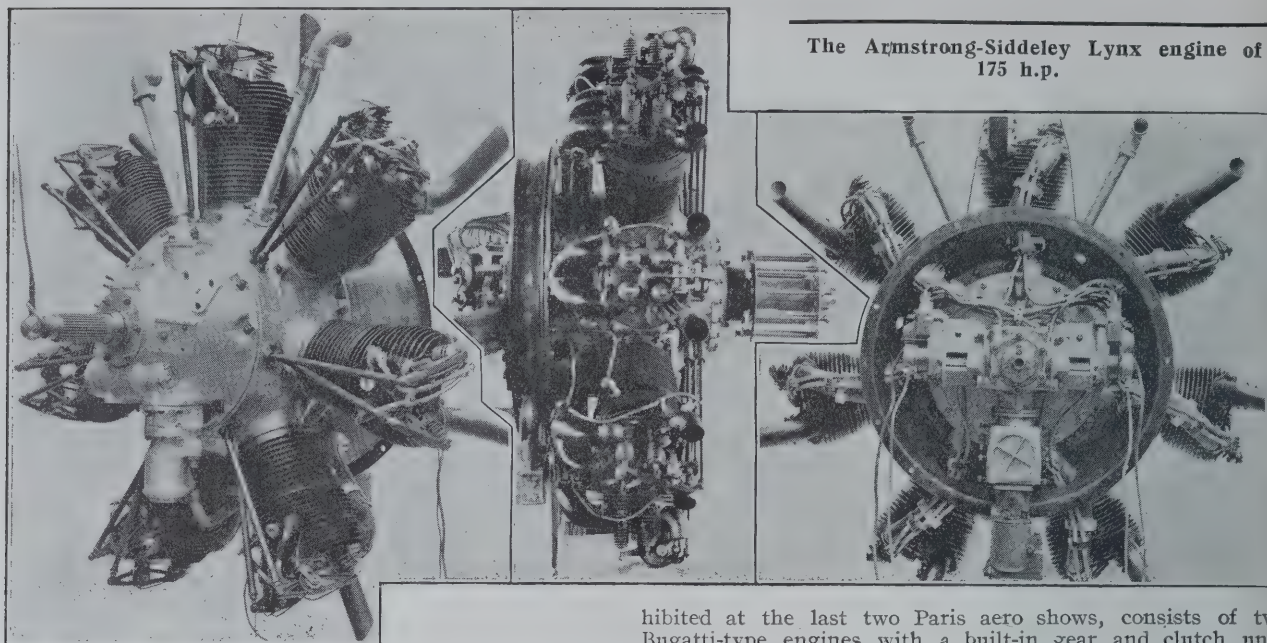
England to Australia	11,500 miles
England to S. Africa	6,281 miles
England to Sweden (and back)	2,450 miles
England to Constantinople	2,160 miles
Across the Atlantic	1,890 miles
England to Finland	1,100 miles
England to Warsaw	1,050 miles
England to Madrid	855 miles

These flights were accomplished without any change of engines en route

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The Armstrong-Siddeley Lynx engine of 175 h.p.

rods are carried on hollow pins which float in the rod and in the big end.

The two-throw crankshaft is machined from a single forging and has gun metal balance weights bolted to extension of the two outer webs. The crankcase is an aluminium alloy casting, approximately cylindrical, containing the cylinder sockets and the valve gear case. Between the main case and the cam gear case a diaphragm carries a roller bearing on the crankshaft. A front crankcase cover carries a roller and a ball-thrust bearing—the latter so arranged as to take thrust in either direction.

At the back of the crankcase is a hollow box casing which supports the rear crankshaft bearing—also of the roller type—and also contains the rotor of a centrifugal fan. The hub of this fan fits into the interior of the crankshaft end and is driven therefrom by splines. A rear cover on this fan casing carries the carburettors and the bearings for the magneto drive shafts. Round the circumference of the fan casing are seven bosses for induction pipes. These pipes split into a Y form a little above the casing and each serves one front and one back row cylinder.

The fan thus serves to induce a reduced pressure above the carburettors and to force mixture into the cylinders. In addition it serves to keep the mixture in a state of uniform agitation, thus preventing petrol condensation and securing uniform distribution of gas.

The lubrication system of the Jaguar presents a certain novelty. The big ends of radial engines require large quantities of oil for cooling rather than for lubricating purposes. But if large quantities of oil are permitted to escape from the big ends a good deal of it will find its way to the cylinders and the oil consumption of the engine will be large—not to mention trouble with sparking plugs and carbonisation.

The crankshaft of the Jaguar is therefore provided with twin oil ducts, and each crankpin is drilled with two holes, one connecting with each duct. Oil is pumped through one duct, and a considerable portion of the oil reaching a big end returns through the other. By adjusting the clearance between big ends and crank webs the amount which escapes in the usual way is adjusted to give sufficient but not too much splash lubrication to the cylinders, while a sufficient quantity is supplied to the big ends to keep them properly cooled.

The lubrication generally is on the dry sump principle, but another interesting point lies in the fact that the oil from the scavenger pump, on its way back to the oil tank, is passed through passages cored in the fan casing cover. It thus serves to warm the mixture from the carburettors and to cool the oil at the same time.

The Lynx is a seven-cylinder single-row engine which is in all essentials one-half of the Jaguar. As an engine for advanced training machines it has very great possibilities, and should find quite a wide field of utility. All its really interesting features have already been described in describing the Jaguar.

BREGUET. (S.A. DES ATELIERS D'AVIATION L. BREGUET.) 115, Rue de la Pompe, Paris.

This year yet another version of the Bréguet Bugatti multiple-power unit was shown. The unit this time is of 1,000 nominal h.p. and like the groups of the same output ex-

hibited at the last two Paris aero shows, consists of two Bugatti-type engines with a built-in gear and clutch unit. The Bugatti engine consists really of two eight-cylinder vertical engines, each with its own crankshaft, arranged side by side and sharing a common crankcase. A pinion in the centre of each crankshaft meshes with a gear on a central airscrew shaft.

The Bréguet innovation consists in fitting the pinions of each crankshaft with an automatic clutch operated by a helix on the shaft, so that if one engine line ceases to function the gear disengages, and in combining two of the double eight-cylinder units to drive one common airscrew. In the earlier types of this combination two separate engine units were arranged, one behind and a little above the other.

This year one set of sixteen cylinders has been inverted and attached to the base of a single crankcase, which contains all four crankshafts and the gears.

A very large amount of ingenuity seems to have been displayed in the design and construction of this engine, but it appears to occupy an enormous amount of space and it certainly looks to be heavy.

Rumour credits M. Bréguet with a belief that this type of engine has a very great future, and that by the employment on an extensive scale of light alloys in place of steel, it will be possible to reduce the weight per h.p. to a figure well below that achieved in any existing engine. It is said—with what foundation one cannot profess to know—that he has already produced an engine with duralumin crankshafts and connecting rods, magnesium pistons, and so on, which developed 750 h.p. for little more than 1 lb. per h.p. Unfortunately after a short run this engine is said to have dissolved into fragments of very small size.

THE BRISTOL AEROPLANE CO., LTD. Filton House, Bristol.

The Bristol exhibit consisted of one specimen each of the Jupiter, Lucifer, and the Cherub engines, and one of the Bristol gas-starters.

The Jupiter was of the series 5 type, rated at 425 h.p. and actually developing 450 h.p. at 1,700 r.p.m. This engine is fitted with a variable timing gear by which the main cam-sleeve can be rotated relatively to the crankshaft. By advancing the valve timing at high altitudes an increased weight of charge can be taken into the cylinders, and consequently the drop in output, which results from decreased atmospheric density, can be to some extent reduced.

With this arrangement the output of the Jupiter at 10,000 ft. is increased by 55 h.p. and at 30,000 ft. by 28 h.p. The gear is very simple, adds only three pounds to the weight of the engine, and can be fitted to any existing Jupiter. For military machines the resulting improvement in performance at height and in ceiling will be of the greatest possible value.

The Jupiter engine is already being built in considerable numbers by the Gnôme Rhône firm in France, and the Bristol Co. have recently granted licences for its construction to the Italian Government for Italy, and to Laurin and Klement, of Mlada-Boleslav, for Czecho-Slovakia.

The Lucifer is of the standard type and is fitted with a universally-jointed hand-starter handle and an exhaust-valve lifter. The starter drive incorporates an automatic clutch which automatically disengages on the first kick of the engine whether that kick be forwards or backwards, so that back-fires need not be feared.

The Cherub, which has been described in detail in re-

SOME ACHIEVEMENTS OF DE HAVILLAND AIRCRAFT DURING 1924

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2nd, D.H.50

ROUND AUSTRALIA IN 22 DAYS

This remarkable flight was carried out in the course of normal operation of a D.H.50 piloted by Capt. E. J. Jones, M.C., D.F.C. Eight thousand miles covered at an average of 4 hours' flying daily.

ENGLAND TO AFRICA IN A DAY

Between dawn and sunset on October 19th, a D.H.50 flown by Mr. Alan Cobham covered the 1,300 miles between London and Tangier in 13 hours via Madrid.

BATAVIA TO SOERABAYA & BACK IN A DAY

The journey of 970 miles was flown in 10 hours by a D.H.9 piloted by Lieut. Nab of the Dutch Navy.

TWELVE HOURS' CONTINUOUS FLIGHT

A D.H.9 piloted by Lieut. Fabry of the Belgian Army carried out a duration test of 12 hours, 3 minutes at Brussels on August 29th.



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cent issues of this paper, made an extraordinary contrast to certain of other light aeroplane engines at the Show, and it should find a readier market abroad—where enthusiasm in regard to private flying seems to exist—than in this country where enthusiasm, whatever its object, is so severely repressed.

FARMAN. (SOCIETE DES AVIONS MET. H. FARMAN.)
167, Rue de Silly, Billancourt, Seine.

The Farman firm showed the two broad-arrow type engines of twelve and eighteen cylinders respectively which have graced each of the Paris shows since the war. These engines have now passed through the experimental stages, have been type-tested, and are apparently being produced in some moderate quantity. Originally designed especially for commercial purposes, cheapness of construction, reliability and ease of maintenance, were more considered than a low weight per h.p. As a result they are extraordinarily bulky for their output and more than a little heavy.

The most interesting feature of this series is the fact that either size of engine can be used either with a direct drive or with a reduction gear of almost any ratio. The crankshaft end is fitted with an internally-toothed ring, and nose pieces carrying gears and/or airscrew shaft giving the desired gear ratio can be fitted to any engine without any structural alterations. The gears themselves are simple and substantial. The crankshaft drives a bevel wheel, which meshes with four sets of bevel pinions carried on cross-arms fixed with the casing. A second bevel pinion is carried on the common hub of each of the first pinions and in turn meshes with a bevel gear on the airscrew shaft.

This makes a compact, if somewhat heavy, gear, and allows the airscrew shaft to be kept concentric with the crankshaft.

GNOME-RHONE. (SOCIETE DES MOTEURS GNOME ET RHONE.) 34, Rue de Lisbonne, Paris (8e).

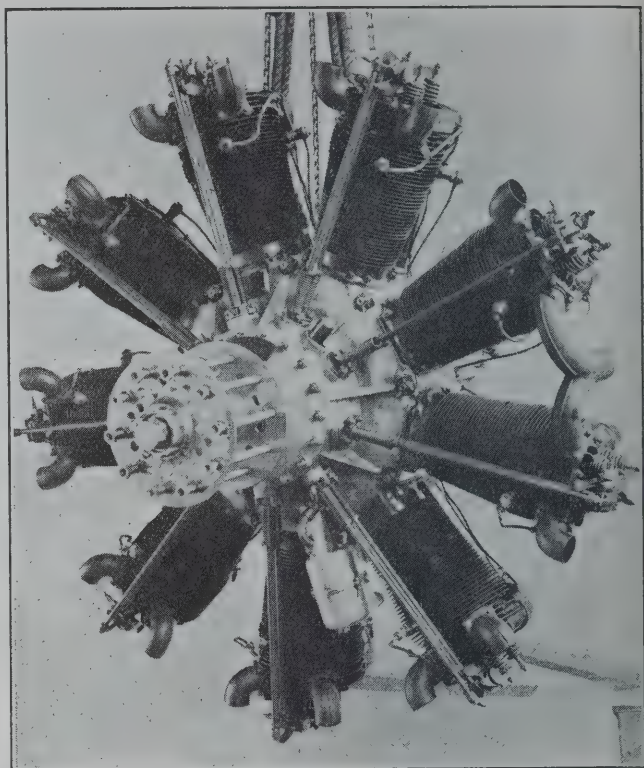
The Gnome-Rhône stand contained two examples of the Le Rhône rotary engine—the 80 h.p. and the 120 h.p.—for which there appears to be a steady demand for training purposes.

The main attraction, however, was the Jupiter—now built under license from the Bristol Company—and apparently at least as much in demand in France as its British-built prototype is over here. The Gnome-Rhône Jupiter looks precisely like the Bristol-built engine, and apart from such minor differences of detail dimensions as are necessarily involved in translating from inch units to metric ones, it is understood that the resemblance persists throughout. The French version is apparently rated at a slightly lower normal output than the British engine, and the variable timing gear mentioned in connection with the Jupiter V is not fitted.

The gas-starter shown on this stand, also under licence from the Bristol Co., resembles the original as closely as is the case with the engine.

LA HISPANO-SUIZA, Rue du Capitaine Guynemeyer, Bois Colombes, Seine.

The exhibit of the Hispano-Suiza firm, comprising as it does three entirely new engines of this well-known type, has some claim to be regarded as one of, if not the most important, feature of the 1924 Paris Show. Those who can remember

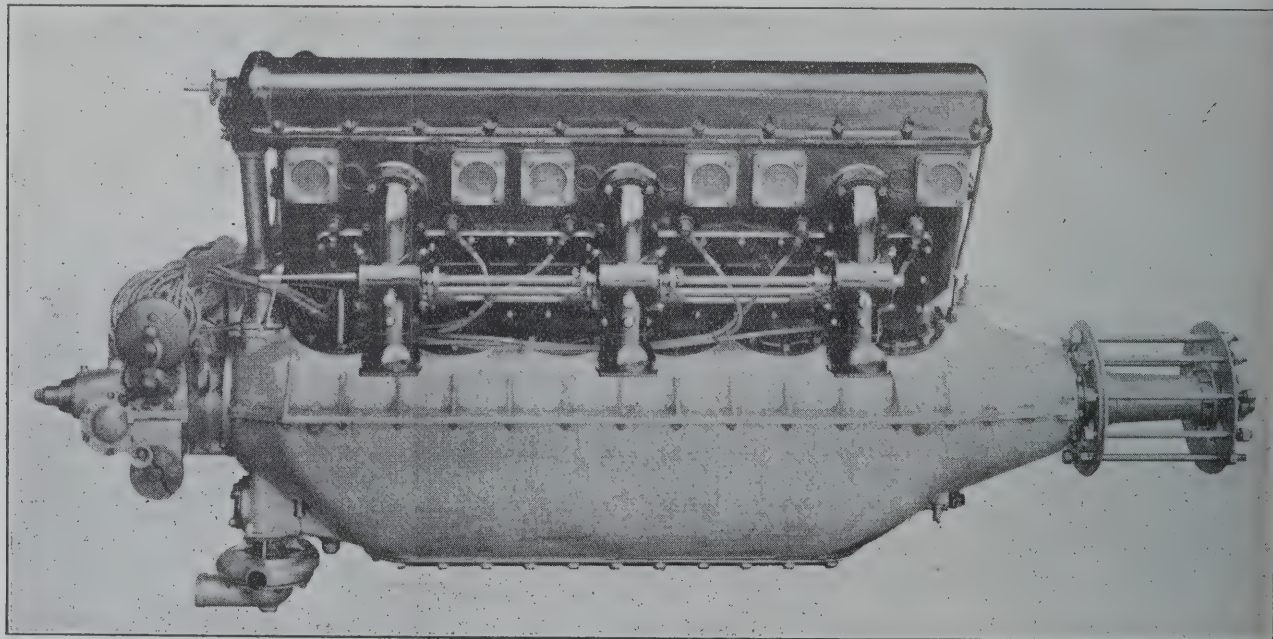


The Gnome-Rhône Jupiter engine of 420 h.p.

the appearance of the original 140 h.p. Hispano-Suiza engine—now nearly nine years ago—may also recollect feeling that it was almost too good to be true. The compactness, external cleanliness of line, and the low weight per h.p. of that engine made a very striking contrast with the bulky and untidy outlines of the majority of stationary engines of the time, and the Hispano-Suiza was the first water-cooled engine to challenge the supremacy of the rotary type for high speed easily manoeuvrable fighting machines.

Apart from the unfortunate episode of the geared 200 h.p. model subsequent Hispano-Suiza engines, up to and including the famous 300 h.p. type, fulfilled all the promises of that early model, and it is a striking tribute to M. Birkight's original design that until the Curtiss D.12 engine in the Curtiss racing machines took a hand in the game, all the world's speed records made since the war were made with the 300 h.p. Hispano—which is a slightly enlarged and boosted edition of the original 140 type, but is of precisely similar design and construction.

During the past year the Hispano-Suiza firm has developed a series of 12-cylinder engines, and as one result of that effort the world's speed record has again returned to France.



The 450 h.p. 12-cylinder Vee Hispano-Suiza. The engine in this photograph has not the standard oil-cooler system attached to it.

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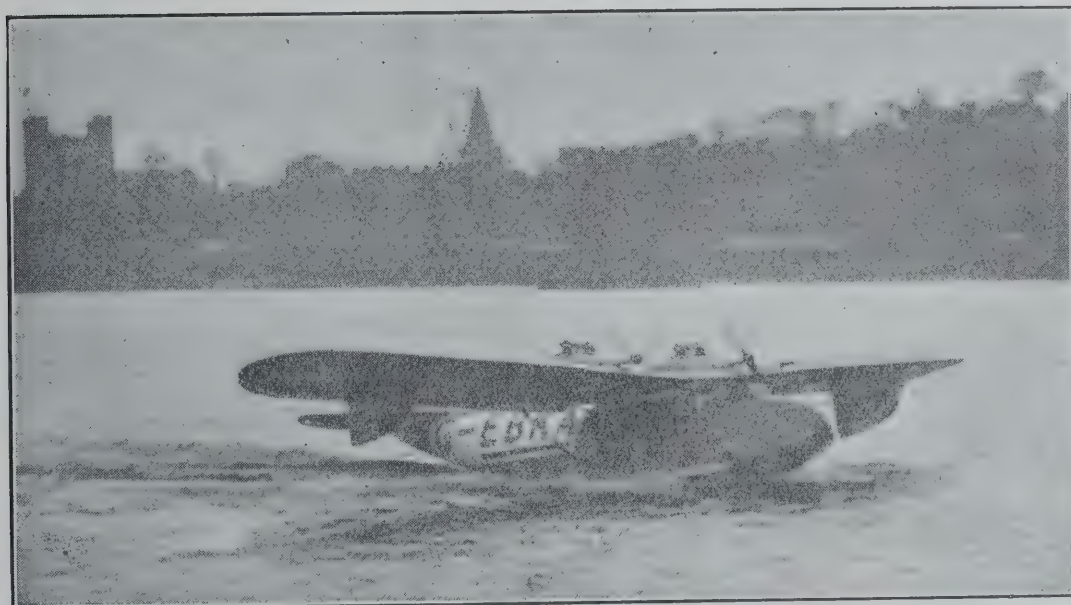
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FIRST British All Metal Military Aeroplane.



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MAKER OR EXHIBITOR.	TYPE NO. OR NAME.	WATER OR AIR-COOLED.	NOMINAL POWER.	NO. OF CYLINDERS.	ARRANGEMENT.	BORE.	STRO
AIRCRAFT DISPOSAL CO., LTD.	Siddeley	W.C.	230 h.p.	6	Vertical	5.7 in.	7.5
	Puma	W.C.	210 h.p.	8	90° Vee	(145 m/m.)	(190 m
	Viper	A.C.	230 h.p.	9	Rotary	120 m/m.	130 m
ANZANI	B.R.II	A.C.	230 h.p.	9	Rotary	140 m/m.	180 m
	25	A.C.	25 h.p.	3	Radial	89 m/m.	105
	35	A.C.	35 h.p.	6	Radial	105 m/m.	120 m
	50	A.C.	50 h.p.	6	Radial	90 m/m.	120 m
	70/80	A.C.	75 h.p.	6	Radial	105 m/m.	125 m
	100	A.C.	100 h.p.	10	Radial	105 m/m.	125 m
	120	A.C.	120 h.p.	10	Radial	105 m/m.	145 m
ARMSTRONG-SIDDELEY	220	A.C.	220 h.p.	10	Radial	125 m/m.	175 m
	Jaguar IV	A.C.	385/425 h.p.	14	Radial	127 m/m.	140 m
BREGUET	Lynx	A.C.	175 h.p.	7	Radial	127 m/m.	140 m
	—	W.C.	1,000 h.p.	32	4 row Vertical	108 m/m.	160 m
BRISTOL	Jupiter V	A.C.	425 h.p.	9	Radial	146 m/m.	190 m
	Lucifer	A.C.	100 h.p.	3	Radial	146 m/m.	158 m
	Cherub	A.C.	20 h.p.	2	Fleet Twin	85 m/m.	96.5 m
FARMAN	W.E.12	W.C.	500 h.p.	12	Broad Arrow	130 m/m.	160 m
	W.E.12	W.C.	500 h.p.	12	Broad Arrow	130 m/m.	160 m
	W.D.18	W.C.	600 h.p.	18	Broad Arrow	130 m/m.	180 m
	W.D.18	W.C.	600 h.p.	18	Broad Arrow	130 m/m.	180 m
GNOME ET RHONE	Jupiter	A.C.	400 h.p.	9	Radial	146 m/m.	190 m
	C.80	A.C.	80 h.p.	9	Rotary	105 m/m.	140 m
	JB.120	A.C.	120 h.p.	9	Rotary	112 m/m.	170 m
HISPANO-SUIZA	—	W.C.	300 h.p.	8	90° Vee	140 m/m.	150 m
	50	W.C.	450 h.p.	12	Broad Arrow	140 m/m.	150 m
	51	W.C.	450 h.p.	12	60° Vee	140 m/m.	150 m
	52	W.C.	350 h.p.	12	60° Vee	120 m/m.	140 m
LORRAINE-DIETRICH	12 D.B.	W.C.	400 h.p.	12	60° Vee	120 m/m.	170 m
	14 ^e	W.C.	450 h.p.	12	Broad Arrow 60°	120 m/m.	180 m
NAPIER & SON	Lion	W.C.	450 h.p.	12	Broad Arrow	5.5 in. (140 m/m.)	5.125
PANHARD ET LEVASSOR	V.12 M	W.C.	500 h.p.	12	60° Vee	165 m/m.	170 m
	V.K.12 L	W.C.	450 h.p.	12	60° Vee	140 m/m.	170 m
RENAULT	300	W.C.	300 h.p.	12	50° Vee	125 m/m.	150 m
	480	W.C.	480 h.p.	12	60° Vee	134 m/m.	180 m
	600	W.C.	600 h.p.	12	60° Vee	160 m/m.	180 m
SALMSON	A.D.3	A.C.	12 h.p.	3	Radial	70 m/m.	86 m/
	A.D.9	A.C.	40 h.p.	9	Radial	70 m/m.	86 m/
	A.C.9	A.C.	120 h.p.	9	Radial	100 m/m.	130 m
	A.B.9	A.C.	240 h.p.	9	Radial	125 m/m.	170 m/
	C.M.9	W.C.	260 h.p.	9	Radial	125 m/m.	170 m/
	A.Z.9	W.C.	300 h.p.	9	Radial	140 m/m.	170 m/
	C.M.18	W.C.	500 h.p.	18	Radial	125 m/m.	170 m/
VASLIN	1,094 c.c.	A.C.	15 h.p.	4	Double Flat Twin	—	—
	—	W.C.	35 h.p.	6	Vertical	70 m/m.	86 m/

RIS SHOW, 1924.

COMPRESSION RATIO.	NORMAL OUTPUT.	MAX. OUTPUT.	WEIGHT BARE.	WEIGHT NORMAL H.P.	FUEL CONSUMPTION NORMAL POWER.		REMARKS.
					PER HOUR.	PER H.P. HOUR.	
—	246 h.p. 1,400 r.p.m.	—	636 lbs. (288 kg.)	2.58 lbs. (1.17 kg.)	17 gals. (77 litres)	.51 lbs. (232 gr.)	—
—	230 h.p. 1,250 r.p.m.	—	—	—	20 gals. (91 litres)	0.69 lbs. (311 gr.)	—
5.5	25 h.p. 1,500 r.p.m.	30 h.p. 1,800 r.p.m.	—	—	—	—	—
—	—	—	—	—	—	—	—
—	—	80 h.p. 1,550 r.p.m.	92 kg. (203 lbs.)	1.22 kg. (2.7 lbs.)	—	—	—
—	—	—	—	—	—	—	—
—	—	120 h.p.	175 kg. (385 lbs.)	1.46 kg. (3.2 lbs.)	—	—	—
—	—	220 h.p.	249 kg. (548 lbs.)	1.13 kg. (2.49 lbs.)	—	—	—
—	410 h.p. 1,700 r.p.m.	—	345 kg. (775 lbs.)	0.84 kg. (1.89 lbs.)	130 litres (29 gals.)	.235 gr. (.52 lbs.)	—
—	185 h.p. 1,620 r.p.m.	—	209 kg. (480 lbs.)	1.12 kg. (2.59 lbs.)	59 litres (13 gals.)	.235 gr. (.52 lbs.)	—
—	—	1,000 h.p. 2,200 r.p.m.	—	—	—	—	Double Bugatti Type.
—	450 h.p. 1,700 r.p.m.	—	330 kg. (730 lbs.)	0.73 kg. (1.62 lbs.)	—	—	—
4.8	100 h.p. 1,600 r.p.m.	—	147 kg. (324 lbs.)	1.47 kg. (3.20 lbs.)	34 litres 7.6 gals.)	254 gr. (.56 lbs.)	—
5.5	22 h.p. 2,500 r.p.m.	34 h.p. 4,000 r.p.m.	37 kg. (81 lbs.)	1.68 kg. (3.68 lbs.)	7.0 litres (1.5 gals.)	236 gr. (.52 lbs.)	—
—	450 h.p. 1,700 r.p.m.	520 h.p. 2,200 r.p.m.	480 kg. (1,055 lbs.)	1.13 kg. (2.35 lbs.)	141 litres (31 gals.)	230 gr. (.51 lbs.)	Direct Drive.
—	—	—	525 kg. (1,152 lbs.)	—	—	—	Reduction Gear 2/1 or 3/2.
—	600 h.p. 1,450 r.p.m.	800 h.p. 2,100 r.p.m.	750 kg. (1,650 lbs.)	1.25 kg. (2.66 lbs.)	188 litres (41 gals.)	230 gr. (.51 lbs.)	Direct Drive.
—	—	—	810 kg. (1,782 lbs.)	—	—	—	Reduction Gear 2/1 or 3/2.
5.0	420 h.p. 1,600 r.p.m.	—	330 kg. (730 lbs.)	0.79 kg. (1.73 lbs.)	137 litres (30 gals.)	235 gr. (.52 lbs.)	—
—	80 h.p. 1,200 r.p.m.	—	128 kg. (282 lbs.)	1.51 kg. (3.5 lbs.)	—	—	—
—	120 h.p. 1,200 r.p.m.	—	148 kg. (327 lbs.)	1.21 kg. (2.8 lbs.)	—	—	—
5.3	300 h.p. 1,800 r.p.m.	—	270 kg. (596 lbs.)	0.9 kg. (1.98 lbs.)	109 litres (24 gals.)	235 gr. (.52 lbs.)	—
5.3	450 h.p. 1,725 r.p.m.	497 h.p. 1,800 r.p.m.	375 kg. (827 lbs.)	0.834 kg. (1.83 lbs.)	143 litres (31.5 gals.)	230 gr. (.51 lbs.)	—
5.3	500 h.p. 1,800 r.p.m.	520 h.p. 1,900 r.p.m.	420 kg. (926 lbs.)	0.84 kg. (1.86 lbs.)	159 litres (35 gals.)	230 litres (.51 lbs.)	—
5.3	350 h.p. 1,750 r.p.m.	412 h.p. 2,000 r.p.m.	305 kg. (675 lbs.)	0.87 kg. (1.92 lbs.)	106 litres (23.5 gals.)	224 gr. (.495 lbs.)	—
5.3	400 h.p. 1,500 r.p.m.	410 h.p. 1,700 r.p.m.	400 kg. (882 lbs.)	1.0 kg. (2.2 lbs.)	124 litres (27 gals.)	230 gr. (.51 lbs.)	—
5.3	450 h.p. 1,800 r.p.m.	—	380 kg. (837 lbs.)	.845 kg. (1.86 lbs.)	141 litres (31 gals.)	230 gr. (.51 lbs.)	—
5.8	460 h.p. 2,000 r.p.m.	—	900 lbs. (413 kg.)	1.96 lbs. (0.9 kg.)	32 gals. (145 litres)	.51 lbs. (230 gr.)	Reduction Gear 2/1.32.
6.0	500 h.p. 1,550 r.p.m.	—	590 kg. (1,300 lbs.)	1.18 kg. (2.56 lbs.)	—	—	Output Constant to 3,000 m.
5.4	450 h.p. 1,500 r.p.m.	525 h.p. 1,800 r.p.m.	545 kg. (1,200 lbs.)	1.21 kg. (2.67 lbs.)	—	—	Sleeve Valves.
5.0	305 h.p. 1,550 r.p.m.	340 h.p. 1,600 r.p.m.	380 kg. (837 lbs.)	1.24 kg. (2.75 lbs.)	103 litres (23 gals.)	242 gr. (.53 lbs.)	—
5.3	480 h.p. 1,600 r.p.m.	510 h.p. 1,700 r.p.m.	500 kg. (1,120 lbs.)	1.04 kg. (2.33 lbs.)	160 litres (35 gals.)	240 gr. (.53 lbs.)	—
5.3	650 h.p. 1,600 r.p.m.	—	725 kg. (1,592 lbs.)	1.11 kg. (2.46 lbs.)	228 litres (50 gals.)	260 gr. (.57 lbs.)	—
5.5	12 h.p. 1,800 r.p.m.	—	34 kg. (75 lbs.)	2.83 kg. (6.25 lbs.)	—	250 gr. (.55 lbs.)	—
—	—	—	—	—	—	—	—
—	120 h.p. 1,650 r.p.m.	—	140 kg. (309 lbs.)	1.17 kg. (2.6 lbs.)	—	250 gr. (.55 lbs.)	—
5.0	200 h.p. 1,550 r.p.m.	240 h.p.	240 kg. (530 lbs.)	1.2 kg. (2.65 lbs.)	—	250 gr. (.55 lbs.)	—
5.4	235 h.p. 1,600 r.p.m.	260 h.p. 1,750 r.p.m.	250 kg. (552 lbs.)	1.06 kg. (2.34 lbs.)	—	230 gr. (.51 lbs.)	—
—	300 h.p. 1,600 r.p.m.	—	300 kg. (662 lbs.)	1.0 kg. (2.2 lbs.)	—	—	—
5.4	450 h.p. 1,600 r.p.m.	550 h.p. 1,700 r.p.m.	460 kg. (1,015 lbs.)	1.02 kg. (2.25 lbs.)	—	230 gr. (.51 lbs.)	—
—	—	—	—	—	—	—	—
6.0	15 h.p. 1,800 r.p.m.	—	—	—	—	—	—
—	35 h.p. 3,000 r.p.m.	50 h.p.	62 kg. (139 lbs.)	1.77 kg. (3.98 lbs.)	—	—	—

The first of these engines, known as the type 50, is a broad arrow which uses three cylinder blocks each identical with one block of the older 300 h.p. type (140 m/m. and 150 m/m.). The angle between cylinders is 60°. Each block is served by one Zenith carburettor of a special horizontal type carried on the back end of straight through induction pipe. The general arrangement of the crankcase and the mounting or magnetos, etc., are practically identical with those of the 8-cylinder V engine. The engine is rated at 450 h.p. at 1,800 r.p.m. and at this power has passed type tests under the standardised regulations and the control of the S.T.Ae. The power curve shows that it can develop its nominal 450 h.p. at 1,725 r.p.m. and 500 h.p. at 1,800 r.p.m. with the standard compression ratio of 5.3. At its rated output the weight per h.p. is 1.83 lbs. This unit is of the same overall length as the 300 h.p. model, and therefore lends itself to installation in machines in which a compact assembly of the main weights is desired. Its frontal area is greater than that of the new V type Hispanos, but that it is not prohibitive in speed purposes is shown by the performance of the Bernard racer which with this engine has recently raised the speed record to 278 m.p.h.

The second new engine, the type 51, is a 12 cylinder 60° Vee with cylinders in two blocks of six each. These cylinders are of the same bore and stroke as those of the type 50, and are of the well-known Hispano-Suiza construction. The only notable difference from earlier types, apart from the presence of six cylinders in the one block, is the fact that both inlet and exhaust ports are brought to the outside of the V, whereas in the earlier models the inlet and carburettors were arranged between the rows, with the exhaust on the outside. The inlet passages for each contiguous pair of cylinders are combined to form one port and a separate carburettor is bolted directly to each such port.

There are thus three carburettors in a row along each side of the engine, with their throttle in line and coupled up to a horizontal shaft. These carburettors are of a totally enclosed type, and are fitted with permanent inlet pipes which pass down to the bottom of the crankcase and draw air through an air cooler bolted on to the crankcase.

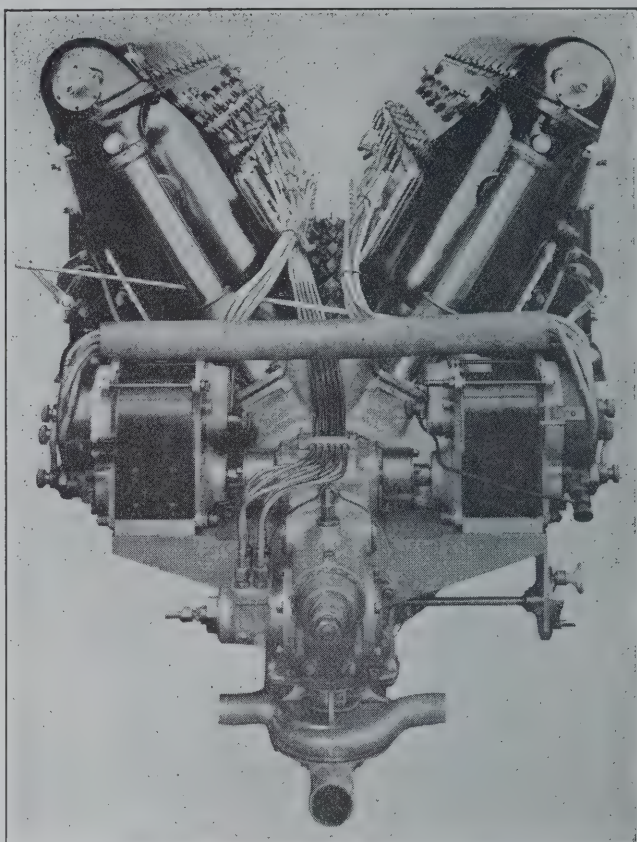
This cooler is an aluminium casting of box form, apparently with walls cored out to form oil passages, and fitted with a central slot, about 1½ inches wide, in the bottom. A similar slot is arranged in the cowling below the engine, and a light sheet-metal trunk bolted to the cooler base and communicating with the slot in the cowling, allows the engine to draw its air from outside the body, and as all leakage in the carburettor is confined to the inlet pipes, forms an effective petrol drain. The oil from the scavenger pumps is passed through the cored passages in the cooler casting on its way to the tank. The arrangement at once cools the oil and warms the inlet air, and certainly looks to make a very effective fire-proof induction system.

This engine is normally of the same output as the three-row type 50 engine, 450 h.p. at 1,800 r.p.m., and has passed its 50-hours' type test under the same conditions. At full throttle it actually develops 505 h.p. at 1,800 r.p.m. and 545 h.p. at 2,000 r.p.m. It is slightly heavier than the three-row engine, so that at rated output the weight per h.p. is 1.85 lbs. Its frontal area is naturally less than that of the broad-arrow type, but its overall length looks excessive. It has to be remembered however that the normal rating is probably a very conservative one—in fact it is claimed that 650 h.p. can be obtained from this type for racing and similar purposes.

The third new Hispano, the type 52, is identical in general arrangement with the 51, but has cylinders of the same bore and stroke as the old 180 h.p. model (120 mm. x 140 mm.) and is rated at 350 h.p. at 1,800 r.p.m. or 400 h.p. at 2,000 r.p.m. It has passed type tests at both ratings consecutively—running 100 hours non-stop at 9/10 of the lower rating, and after stripping for examination, it was fitted with new pistons giving a higher compression ratio and forthwith ran for 50 hours non-stop at 9/10 of 400 h.p.

With the low compression (5.3) the full throttle output at 1,800 r.p.m. is 378 h.p., and with a compression of 6/1, 424 h.p. is developed at 2,000 r.p.m.

At 400 h.p. the weight per h.p. is as low as 1.68 lbs., which must be very nearly a record for any water-cooled engine taken on a type-test rating. If French aircraft designers of the

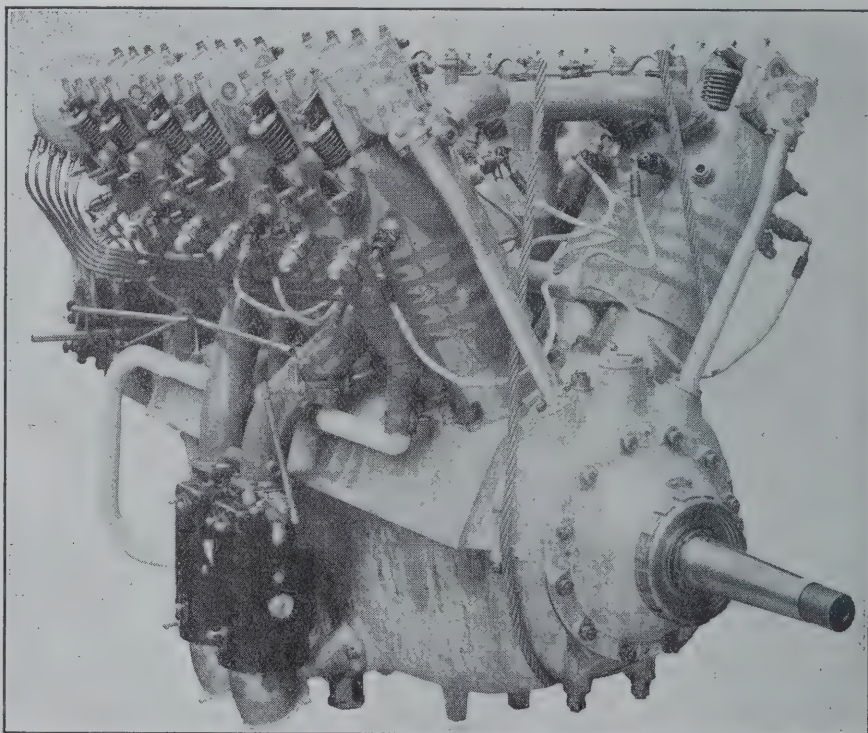


Gear-end view of the Vee type 450 h.p. Hispano-Suiza.

near future show themselves as capable of using the qualities of the new Hispano as M. Delage has proved to be in the past it is going to be no easy task again to remove the world's speed record from France.

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The Lorraine-Diétrich engine of 400 h.p., which bears to the 375 h.p. war time Lorraine much the same relation as is borne by the Rolls-Royce Eagle IX engine to the earlier series of Eagles is probably in more extensive use than any other modern French engine, and bears an extremely high reputation for reliability and general good behaviour.



The 400 h.p. Lorraine-Diétrich engine.



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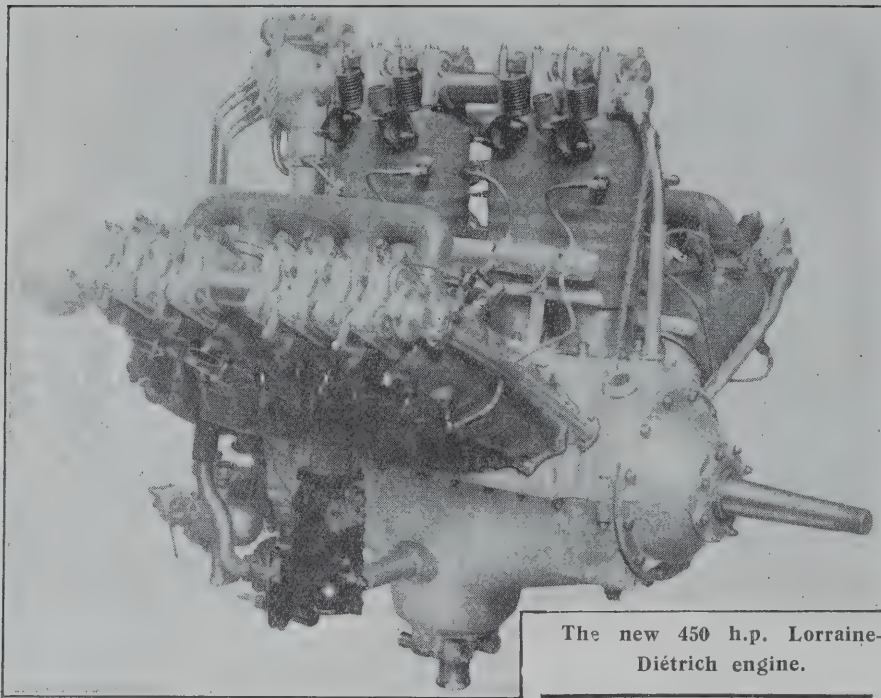
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The new 450 h.p. Lorraine-Diétrich engine.

Several hundreds of these engines are in use on the services of the Cie. Franco-Rumaine alone, and the great majority of the more recent two-seat fighter and reconnaissance machines of the French Army have been equipped with them. It was an engine of this type which took Lt. Peltier Doisy to Shanghai, and this actual engine, completely assembled, was shown on the firm's stand. Apart from some damage of an accidental nature to the crankcase and the rear crankshaft bearing it appeared to be in excellent condition.

This engine is of the 12-cylinder Vee type, with steel cylinders and an overhead camshaft. Pairs of cylinders are enclosed in a common water-jacket of welded sheet steel, and generally the details represent good standard practice.

The new 450 h.p. engine, which seems likely to displace the 400 h.p. type at least for military purposes, is of the three-row broad arrow type. The cylinders are of the same construction as those of the 400 h.p. type, are jacketed in pairs and have the same bore and a slightly increased stroke. The engine is considerably shorter and more compact than the 400 h.p., is some 10 kg. (22 lbs.) lighter, and develops 70 h.p. more. It has passed all bench tests with flying colours and in fairly extensive service in aircraft of many diverse types has so far promised to uphold the reputation already gained by the 400 h.p. type.

PANHARD ET LEVASSOR, 19, Avenue d'Ivry, Paris.

This well-known car firm has been a consistent exhibitor of engines at the Paris Show since the end of the war, but so far as it is possible to discover, no engine of their design of recent years has ever been put into the air. Nevertheless their exhibit is not uninteresting. It consists of two engines.

The first appeared at the 1922 exhibition. It is a 500 h.p. 12-cylinder Vee with overhead valve gear, of the over-dimensioned and super-compressed type, designed to develop its full output at 3,000 metres—say, 10,000 ft. Regarded as a 500 h.p. engine it is both bulky and heavy and there seems little doubt that it is this fact that has prevented it from coming into use. At 10,000 ft., however, it should be equivalent to a normal 750 h.p. engine except that its fuel consumption should be better, and on this basis its size and weight per h.p. compares well with standard engines.

Super-compression cannot practically be carried on to such an extent as to maintain full output up to any height very much more than 3,000 metres, however, so presumably the French military authorities regard this type of engine as a relatively unimportant half-way

house to the super-charged unit, which can be made to give practically its full power at considerably greater altitudes, and this attitude is probably quite sound. At any rate, it seems to be shared by a good many others.

Their other engine is also a 12-cylinder Vee, fitted with Knight sleeve-valves. It is rated at 425 h.p., and like the other Panhard engine is distinctly of the heavy-weight type. The weight dry is said to be 545 kg., 1.28 kg. (2.83 lbs.) per h.p. From its looks, however, one imagines that a good deal of this weight could be removed without serious trouble, and if this can be done the type has at least one very great advantage in the small frontal area. This sleeve-valve engine is of the same stroke (170 m/m.) as the other Panhard engine, but thanks to the absence of overhead valve gear, the cylinders are about six inches shorter from crankcase to head, and the cross-section of cowling required to contain this engine cannot be more than two-thirds of what would be required if ordinary valve gear were fitted.

The sleeves used are of heat-treated steel, about 1 m/m. thick, and a very thin layer of anti-friction metal is attached to one sleeve so that the sleeves do not bear directly on each

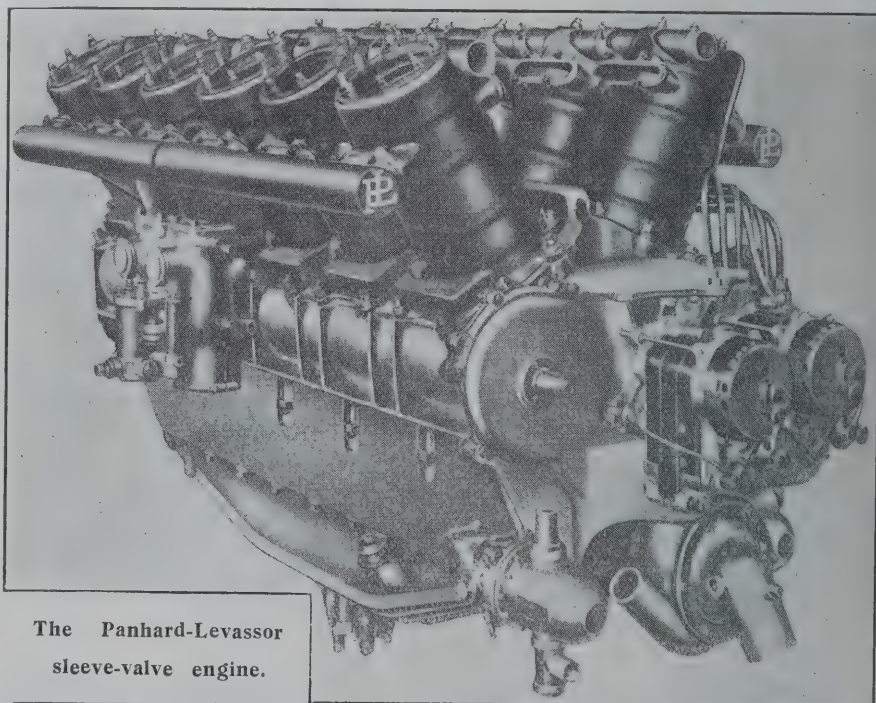
other. This type of steel sleeve has been extensively used in Panhard cars with successful results, and undoubtedly saves a great deal of weight and of space as compared to C.I. sleeves—which have to be of about three times the thickness.

Apart from the fact that it is a sleeve-valve engine and has this type of sleeve the engine has no points of interest that could be discovered. It is said to have given very satisfactory results on the bench, and it would certainly seem that the type is worthy of further development.

RENAULT. (S.A. DES USINES RENAULT.) 8-10, Avenue Emile Zola, Billancourt.

The Renault exhibit consisted in all of six engines. Three of these represent established types already in use. These are the well-known 300 h.p. 12-cylinder Vee—shown as at the 1922 Salon fitted with a Rateau Supercharger—the 480 h.p. 12-cylinder Vee, and the 600 h.p. 12-cylinder Vee—called a 575 h.p. engine in 1922—but so far as one can discover, identical in other respects.

One attachment to these engines is new this year and deserves comment. This is a centrifugal oil purifier which is fitted at the after end of the crankcase. This consists of a small metal drum, carried inside an oil-tight casing, and rotated by a train of gears at a very high rate—about 6,000 r.p.m. at normal engine speed. Oil from the engine sump



The Panhard-Levassor sleeve-valve engine.



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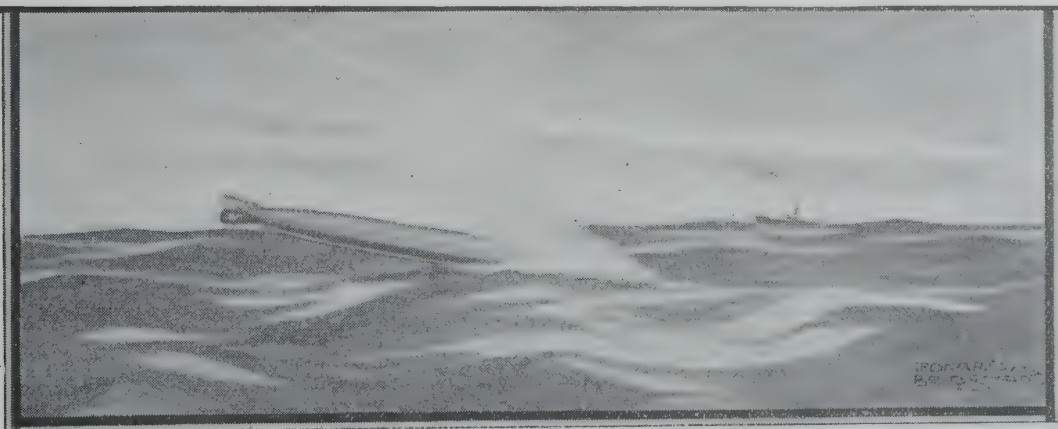
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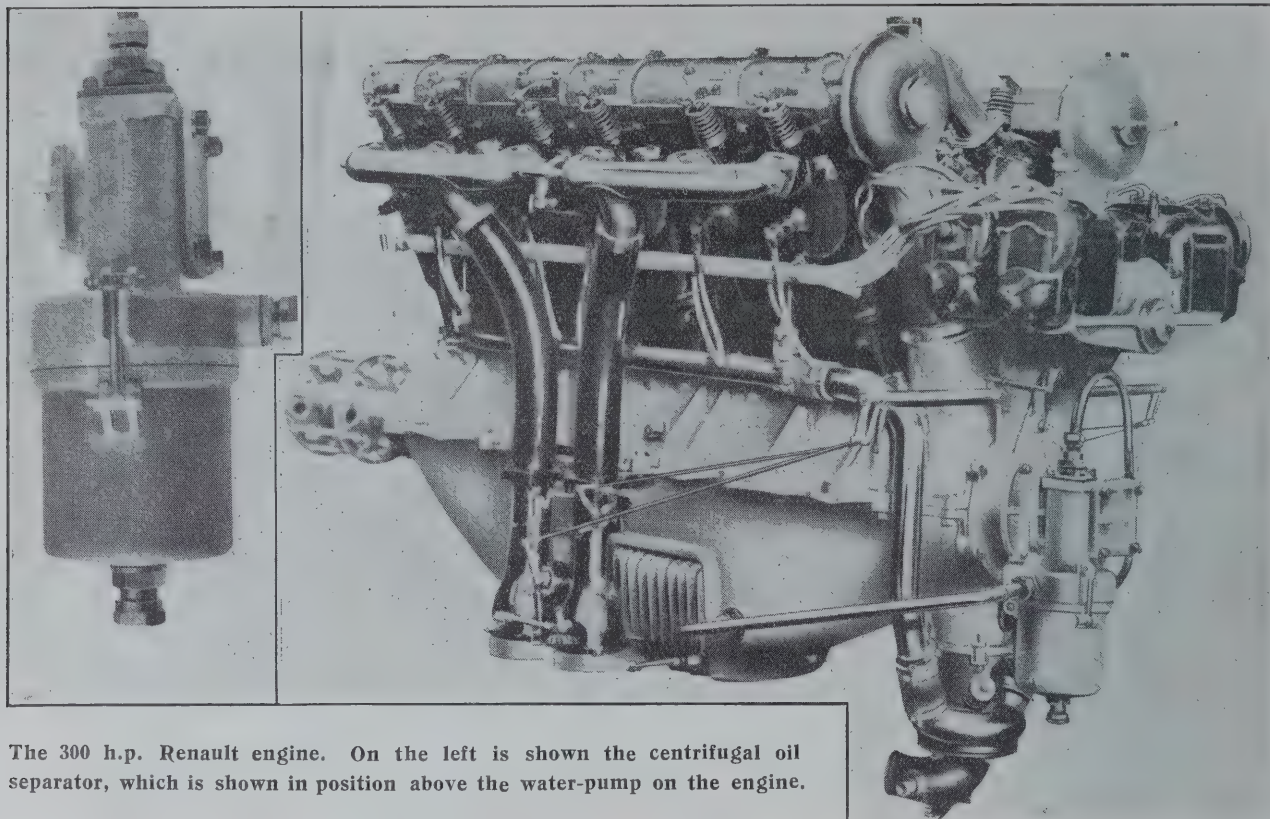
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The 300 h.p. Renault engine. On the left is shown the centrifugal oil separator, which is shown in position above the water-pump on the engine.

is passed into the drum before it is recirculated to the bearings. All dirt and grit is thrown out to the edge of the drum by centrifugal force and the cleaned oil is drawn by the pressure pump from near the centre of the rotating drum. It is said that a perceptible coat of carbon and fine metallic dust can be found on the walls of the separator after a few hours of running, and that measurements of bearing wear have shown that the rate of wear is perceptibly reduced when the separator is in service.

The other three engines shown by Renaults are all of them in the development stage, two of them being types entered for the great French engine competition. Practically no information could be obtained concerning them. All three are of the 12-cylinder Vee type. Externally one of them appears to be the above-mentioned 480 h.p. type fitted with a spur reduction gear and rated at 500 h.p.

The other two—which are the competition engines—are also rated at 500 h.p. and differ one from the other only in that one is of the direct drive and the other of the spur-gear type.

They are large 12-cylinder Vees, with overhead camshafts and steel sheet water-jackets. The only peculiarities which can be seen from the outside is the provision, at the airscrew end of the crankcase, of a large cast-on bracket running up to the camcase.

SALMSON. (SOCIETE DES MOTEURS SALMSON.) 102, Rue du Pont du Jour, Billancourt.

The Salmson exhibit covered the whole range of this type of engine, the only novelty since the 1922 show being the three-cylinder 12 h.p. and the nine-cylinder 40 h.p. models which have been produced as a consequence of the light aeroplane movement. Both these engines are thoroughly nice-looking jobs. The 12 h.p. model scarcely seems to have any real utility—unless it will actually develop a good deal more power than is claimed for it—but the nine-cylinder 40 h.p. engine should be quite serviceable. It certainly looks a nice job.

These two (the A.D.3 and A.D. 9) together with the A.C.9 of 120 h.p. and the A.B.9 of 220 h.p., are all of the radial air-cooled type with cast-steel cylinders. Beside these engines the well-known C.M.9 (260 h.p.) 9-cylinder water-cooled

radial, the A.Z.9, a very similar 300 h.p. model, and the C.M.18, 550 h.p., which is a double-banked C.M.9, were to be seen. These engines are of a well-known type and appear to have no new feature.

VASLIN.

On the Dewoitine stand there were shown two Vaslin light aeroplane engines. One was of the known four-cylinder double-opposed air-cooled type, of 1,094 c.c. capacity, rated at 15 h.p. at 1,800 r.p.m. It is quite a well-made little engine with C.I. cylinders, and is probably capable of developing a good deal more than its rated power. It appears to weigh somewhere round 30 kg. (75 lbs.).

The other, installed in a Dewoitine D.7, is quite a different affair. It is a miniature six-cylinder water-cooled vertical with push-rod operated overhead valves. All the cylinders are enclosed in one welded-on sheet-steel water-jacket. No information as to bore and stroke could be discovered, but it was said to develop 35 h.p. at 3,000 r.p.m., to be capable of being pushed up to 50 h.p., and to weigh 62 kg. (137 lbs.). From its appearance this engine was an experimental model, and its external finish was somewhat rough.

It has a very small frontal area, a radiator with about 6 in. by 8 in. of tube face is all that is necessary to cool it, so that a very well-shaped nose can be fitted to a machine equipped with it. Such an engine should be very pleasant to fly behind—and in France, at least, it should not be costly.

The French have long had a reputation for an over indulgence in argumentation, but so far as light aeroplane engines are concerned the ratio of argument to experimental production seems to be lower than in this country.

Satisfaction.

TRIPLEX SAFETY GLASS COMPANY, LTD.—Satisfaction in full on Aug. 19, 1924 (a) of Notice of Deposit of Land Certificate dated Feb. 22, 1922, together with earlier deeds but without written instrument securing £30,000, and (b) of charge collateral to debentures dated April 25, 1922, securing £30,000

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A Use for Atmospherics.

Atmospherics is the name given to that type of atmospheric electrical disturbance which frequently disturbs and is still more frequently accused of disturbing wireless reception. Before the advent of wireless telegraphy and telephony, "atmospherics" had been known to disturb ordinary telephonic and telegraphic communications, and until recently this is about all that had been heard of them.

In a paper read before the Royal Aeronautical Society on Thursday, Dec. 18, Mr. R. A. Watson Watt gave an account of some experiments which originated during the war and have been continued since, which indicate that this hitherto utterly objectionable phenomenon may be made useful.

Briefly Mr. Watt and his associates have turned direction-finders onto atmospherics and have located their apparent origin in a large number of cases. Having done this they have inquired into the meteorological conditions prevailing in the neighbourhood of the origin at the time.

The results in some ways are not surprising. In a large proportion of cases a definite thunderstorm has been shown to have occurred within a reasonable short distance of the apparent origin. In other cases, hail, passing showers, squalls or rainstorms have been found in the vicinity, and in most of the cases where none of these phenomena have been observed, the meteorological data available have shown a pressure distribution indicative of stormy conditions and the likelihood of a disturbance of the thunderstorm type.

From these results it seems reasonable to assume that the position of many violent disturbances of a nature likely to be dangerous to aircraft—particularly thunderstorms—can be located at very considerable distances by ordinary wireless direction-finding apparatus, and also that the movement of such a storm centre can be followed.

For the purposes of long-distance air navigation this may be of the greatest importance, for it means that it will be possible for a couple of base stations to warn an aircraft of the position of a disturbance of this nature anywhere in the vicinity of its track, to give particulars of its speed and direction of movement, in many cases long before the aircraft has reached the vicinity of the storm, and therefore in time to allow it to alter course so as to give it a wide berth. In the case of airships on such a line as the proposed route to India this would be of almost incalculable value.

It seems possible that the location of the origin of such

disturbances may have even more uses than just those of giving warning as to storm centres. The uncertainty of forecasting British—or more generally Western European—weather is largely due to insufficient information as to the conditions over the Atlantic. The forecaster gets a fairly accurate idea of the pressure distribution over the Atlantic at a time somewhat previous to the making of the forecast. He finds that there is a large depression over the ocean, and he has to guess how that depression is going to move. The general pressure distribution over the whole area concerned, and his information as to the previous course of the centre of the depression, generally allows him to conclude that it will probably, let us say, pass well to the north of Scotland, and that anticyclonic conditions and fine weather will occur over Southern England. But weather reports from the ocean are usually neither complete or simultaneous, his weather map is a little uncertain as to details, and the depression may take quite another course and its centre may pass over the British Isles. If such a depression is—as it probably will be—an origin of atmospherics, the forecaster can watch its movements in detail, and make out his forecast with an accurate knowledge of its history, right up to the time of forecasting. If this proves to be the case, it should become possible very greatly to improve the accuracy of European weather forecasting—which at present leaves a good deal to be desired.

A Kodak Kinematograph.

The old Kodak motto "You press the button, we do the rest" is now being replaced by a new motto "You turn the handle, we do the rest," for the Kodak Co. have now placed on the market a kinematograph camera which can be used by the non-professional individual. In fact when the motor-drive attachment is fitted the old motto still holds good, for on pressing the button the motor does the work.

The price of the apparatus, which is known as the "Ciné-Kodak," is £80, which of course is a trifle expensive for the amateur, but it strikes one that such an outfit would be well worth the money to any aircraft firm which desired to have a moving picture record of the manners and customs of its aircraft when getting off, flying and landing. Undoubtedly much useful information might be obtained in this way, especially if slow-motion pictures were taken.

The Ciné-Kodak is built and finished with all that excellence which is typical of the Kodak products. And the lens, which opens to f. 3.5, is of the highest obtainable grade.



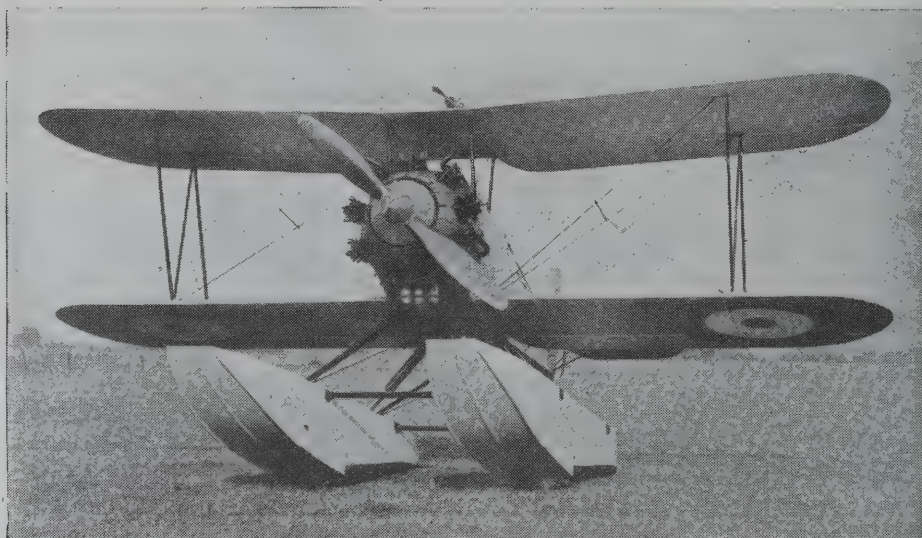
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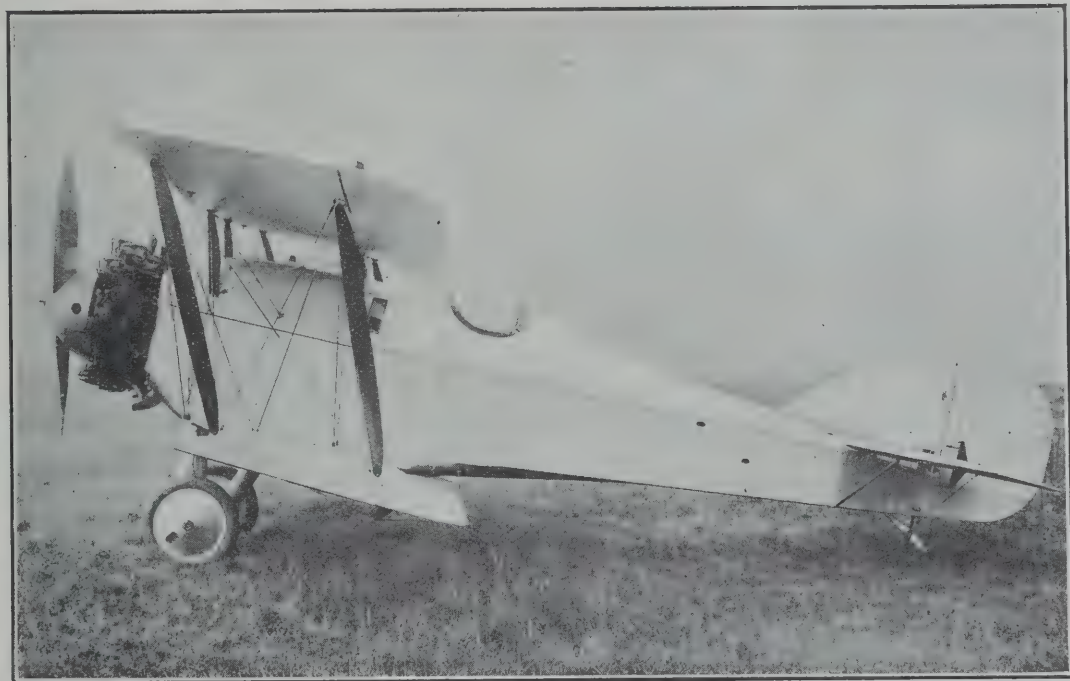
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Air Affairs in Parliament.

HOME DEFENCE UNITS.

In the House of Commons on Dec. 18, in reply to a question by SIR J. NALL, the SECRETARY OF STATE FOR AIR said that the regular home defence units were to be augmented by both Auxiliary Air Force and Special Reserve Squadrons. The pilots of the Special Reserve units would be taught to fly at regular Air Force stations, but a similar system of attaching other personnel would not prove to be efficient or economical. Only men in skilled trades would be enlisted and the small amount of periodical training required could be carried out more conveniently at their units in the industrial centres than at the often remote Air Force stations.

FATAL ACCIDENTS.

In the House of Commons on Dec. 18, in reply to MR. THURLE, who asked the SECRETARY OF STATE FOR AIR the number of fatal accidents in the R.A.F. in connection with flying for the 12 months ending Sept. 30, 1924, SIR S. HOARE said there had been 47 fatal accidents in the period named.

THE BOYS' WING, CRANWELL.

In the House of Commons on Dec. 18, in reply to a question by MR. TAYLOR, the SECRETARY OF STATE FOR AIR said that it was intended to close the Boys' Wing when all the aircraft apprentices now at Cranwell had completed their course of training in Sept., 1927.

POISON GAS.

In the House of Commons on Dec. 18, in reply to a question by MR. THURLE, the SECRETARY OF STATE FOR AIR said that his Department had not given and did not contemplate giving any orders to private firms for the manufacture of aerial bombs filled with poison gas.

HARDY ANNUALS.

In the House of Commons on Dec. 18, LIEUT.-COMMANDER KENWORTHY asked his usual weekly question about the abolition of fees for Cadets for the R.A.F., and SIR S. HOARE replied that he hoped to go into the question fully in the near future. On the same day SIR F. SYKES was interested in the appointment of a Director of Scientific Research at the Air Ministry, and was informed that the matter had the close attention of the Secretary of State for Air. MR. TAYLOR inquired about the status of civilian instructors in the R.A.F. and was told that the conditions of service were laid down in the letters of appointment and Air Ministry Regulations for civilian employés.

The Australian Premier Flies.

In October last, Mr. S. M. Bruce, the Australian Prime Minister, accompanied by Mrs. Bruce and members of a Parliamentary party, flew from Longreach to Winton and back, a distance of 214 miles in all, in aircraft belonging to the Queensland and Northern Territory Air Services.

These flights took place during a visit of the Prime Minister and party to Queensland in the last Parliamentary recess, and were made at the request of the Prime Minister in order that first-hand knowledge might be gained as to the possibilities of aviation in the great outback.

Mr. and Mrs. Bruce and party made the journey in two aeroplanes, a D.H.9 and a D.H.50, both fitted with the 240 h.p. Siddeley Puma engine.

In a telegram sent to our Australian contemporary, *Aircraft*, by Mr. Bruce, he said, among other things, that "such an amazing advance has been made in this arm of transport during the last few years that it is difficult to visualise what may be accomplished in the future, but I am confident that air transport will become an increasingly important factor in our national life with each succeeding year. . . . The good progress which has been made up to the present and the excellence and efficiency of the service I have just utilised (the Q.U.A.N.T.A.S.) augur well for the future of air transport in Australia."

The Defence of Finland.

A *Reuter* message to the *Times* on Dec. 12 states:—

By invitation of the Finnish Government several officers of the British Navy, Army, and Air Force recently made a thorough inspection of the Finnish coastal defences with a view to co-ordinating all arms in defence of the long coast. Foreign experts are also assisting in the reorganisation of the Finnish Army.

Sir Sefton Brancker's Tour.

Sir Sefton Brancker, who is flying to India in a D.H.50 piloted by Mr. Alan J. Cobham, arrived in Baghdad on Saturday, Dec. 20. He left Constantinople on Dec. 16. He is due to leave Baghdad to-day, Wednesday.

Sir Sefton left Stag Lane on Nov. 20 and called at Paris, Cologne and Berlin. At Berlin he had important discussions with the German air authorities and was stated to have expressed a view that the airship route to India lay across Germany. He then proceeded to Warsaw, where he was delayed, and went to Bucarest by train. His machine caught him up here and he proceeded by air to Constantinople where he was delayed for a week with trouble. He has inspected various sites for mooring masts in Asia Minor. He will travel through Persia to India and is due in Calcutta early in the New Year.

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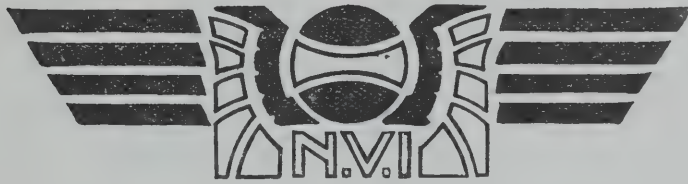
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"It is the chief attraction of the Show for those who wish to see all that is of the most modern in military two-seaters."

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COMMERCIAL AERONAUTICS. The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 4; Tuesday, 11; Wednesday, 1; Thursday, 7; Friday, 6; Saturday, 0; Sunday, 6.

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London—Paris—Zurich; London—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 25, passengers 58, freight 7 tons.

AIR UNION:

Paris—London: Machines 4, passengers 14, freight 7 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 6, passengers 10.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 0, passengers 0.

Total number of trips by British machines: 25, carrying 58 passengers. Foreign machines: 10, carrying 24 passengers.

Comparative Figures:

For week ending Dec. 21:

Machines, 35; Passengers, 82; Crews, 39; Total personnel, 121.

Corresponding week, 1923:

Machines, 51; Passengers, 87; Crews, 77; Total personnel, 164.

Corresponding week, 1922:

Machines, 52; Passengers, 168; Crews, 100; Total personnel, 268.

Corresponding week, 1921:

Machines, 49; Passengers, 108; Crews, 73; Total personnel, 181.

Corresponding week, 1920:

Machines, 19; Passengers, 9; Crews, 18; Total personnel, 27.

Croydon Notes.

Things are progressing satisfactorily at Croydon for the time of the year though weather conditions make the going somewhat unreliable.

The Avro 14-seater is expected at the aerodrome any time now, and will be the first of the new vintage air liners. Everyone is very anxious to see how the Rolls-Royce Condor III performs on the service as it is well known that continuous air-line running is about the severest test an aero engine can undergo, and it is under such conditions that any little weakness is discovered. This was proved in the early days of the Napier Lion, and it is largely due to the experimental work on the air lines that the Lion is the fine engine it is to-day.

One of the Handley Page W.8bs has now blossomed out in Imperial Airways' colours. The fuselage is painted Instone blue, and the wings are silver, which gives an effect singularly pleasing.

Mr. Leverton has gone away for a short holiday, and his

place is being taken at the aerodrome by Mr. Dellaert, who will deal with all matters pertaining to the operation of K.L.M. at this terminal.

Some Fokker F.7s are now being built for K.L.M. and it is expected that two of these will be ready by the end of the year. The three-engined Koolhoven machine for this service is expected to be ready in March.

At the Aircraft Disposal Company Mr. Perry has been testing the Martinsyde A.D.C.1 during the week, and a Captain Oddie was also flying it. A new Airdisco I engine has been fitted into an Avro which Mr. Perry has been testing.

U.S. Air Mail Crash in Snowstorm.

During the night of Dec. 21 the night air-mail from Chicago to Omaha crashed in a snowstorm 50 miles west of Chicago, and the pilot, Mr. Charles Gilbert, was killed.

The pilot's body was found half a mile from the wrecked aeroplane, and fragments of a parachute were still attached to the pilot's harness indicating that he had jumped from the machine before it crashed and that the parachute had fouled something in its fall.

This is the first fatal accident to occur since the night trans-continental air-mail service was started six months ago.

[The assumption is that Mr. Gilbert decided to come down and rather than chance crashing in his machine he used his parachute. Evidently, instead of jumping clear and then opening the parachute, he, knowing he was near the ground, opened the parachute before clearing the machine, and so caused it to become entangled in some part of the tail.—C. G. G.]

PERSONAL NOTICES.

DEATH.

BURCH.—On Dec. 18, Nathaniel Francis Burch, late Lt. of the R.A.F. (Croix de Guerre), beloved husband of Florence Ellen Burch, and youngest son of the late Edward Robert Burch.

BIRTHS.

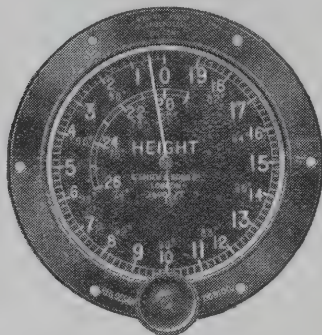
MEDHURST.—On Dec. 19, at Fulford Vicarage, York, the wife of Sq. Ldr. C. E. H. Medhurst, O.B.E., M.C., R.A.F.—a son.

MOFFATT.—On Dec. 18, at Shuna, Manor Way, Purley, to May, wife of Flt. Lt. A. McR. Moffatt, R.A.F.—a daughter.

PECK.—On Dec. 17, at 41 Manor Road, Folkestone, the wife of Sq. Ldr. A. H. Peck, D.S.O., M.C.—a daughter.

VINCENT.—On Dec. 16, at "Torcross," Caterham, to Gladys, wife of Flt. Lt. F. J. Vincent, D.F.C., R.A.F.—a son.

Instrument Chats (No. 40.)



The Smith Boiling Point Altimeter has in addition to the usual markings on the scale, figures which indicate the boiling point of water at various altitudes, enabling the Radiator Thermometer to be corrected for the particular height at which the machine is flying. Full particulars of this and other aeronautical instruments sent free on request.

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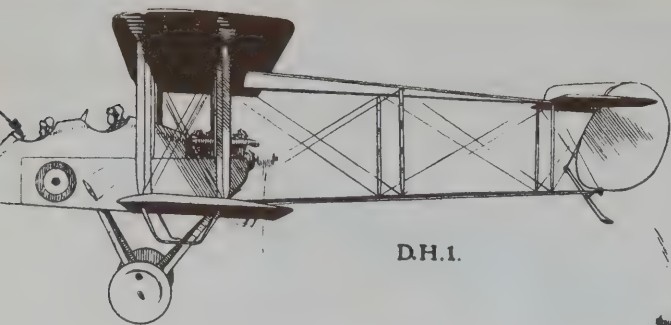
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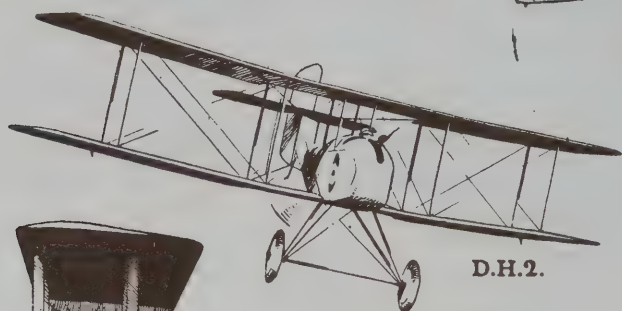
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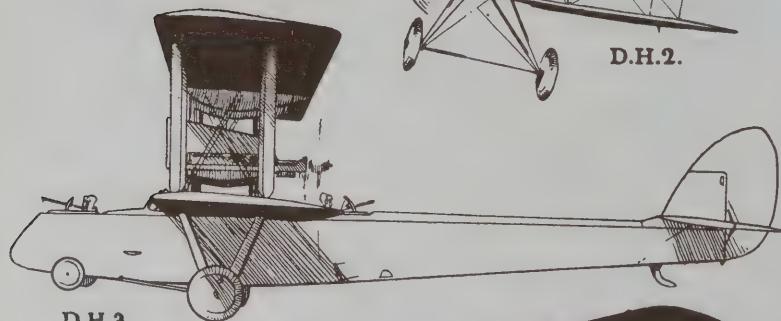
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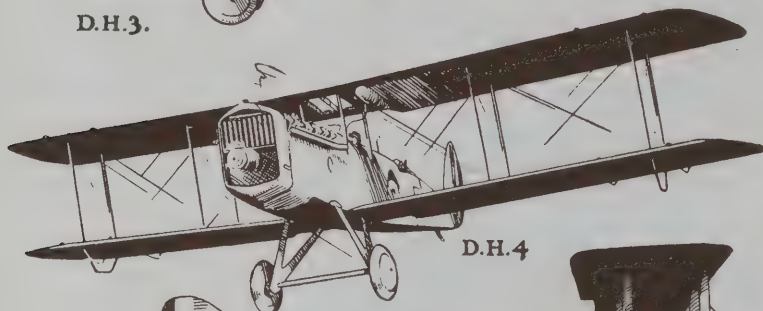
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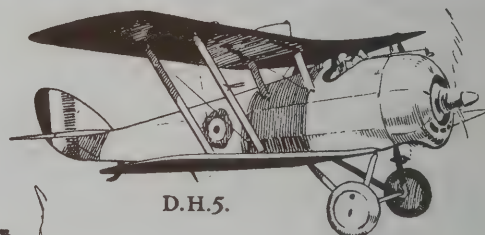
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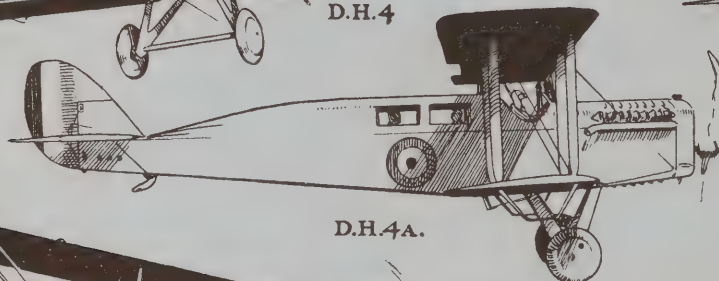
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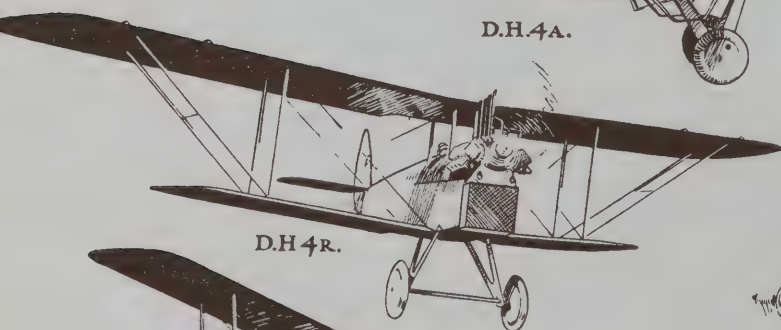
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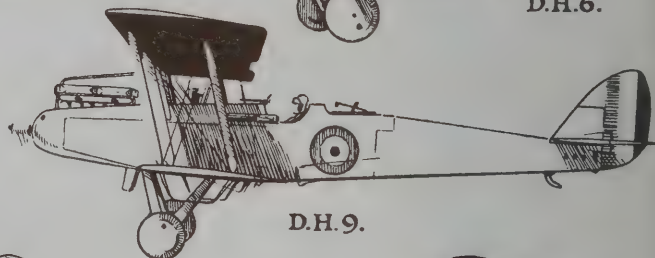
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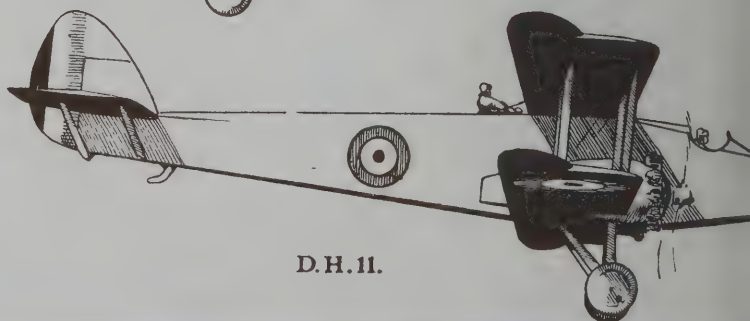
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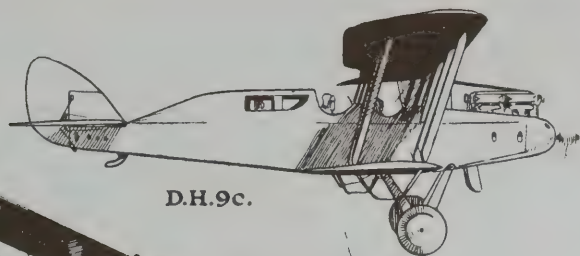


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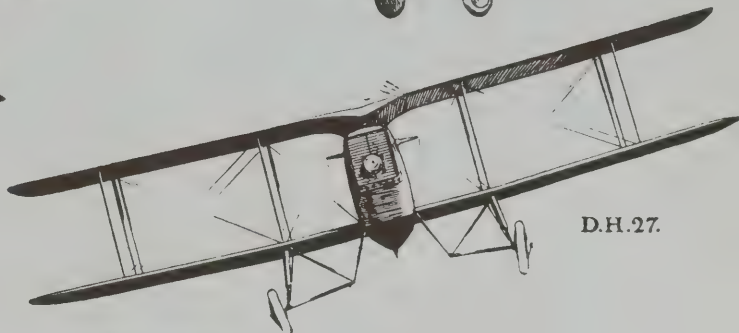
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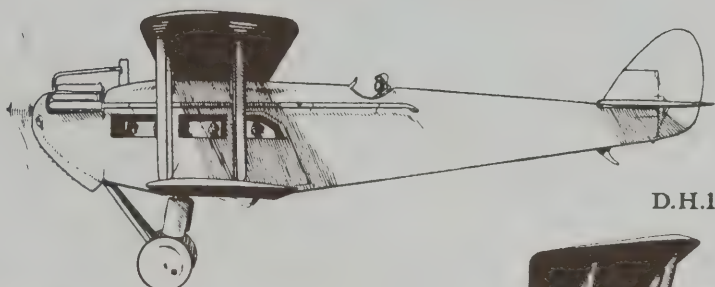
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D.H.27.



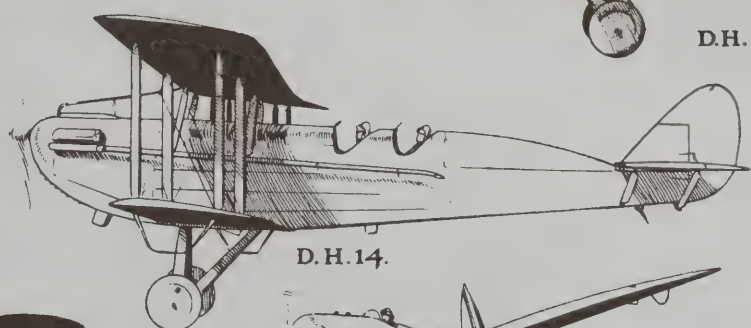
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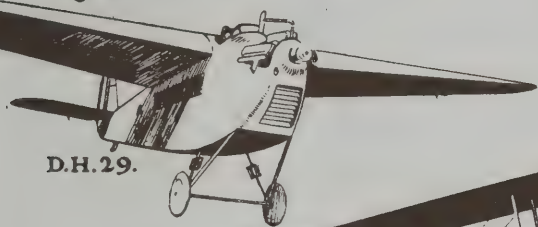
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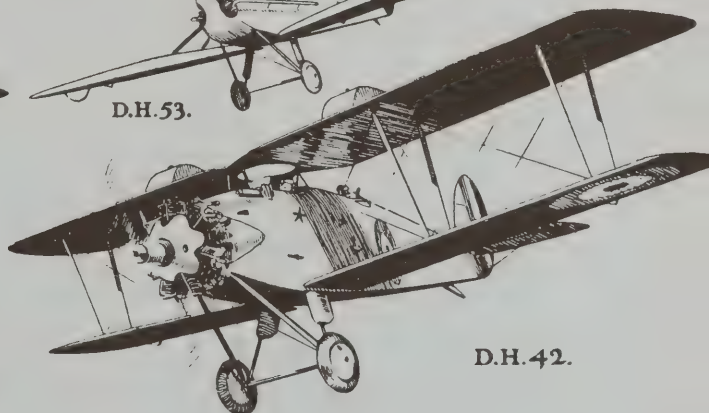
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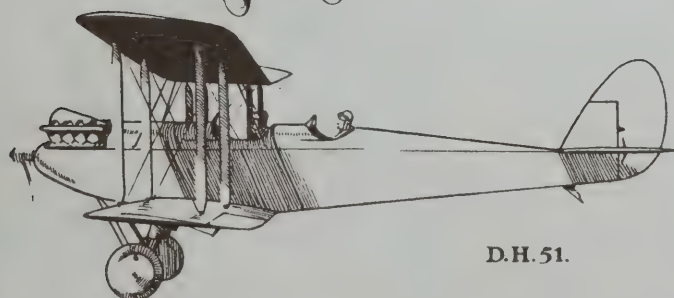
D.H.53.



D.H.50.



D.H.42.



D.H.51.

LEONARD
BRIDGMAN
Sketch.



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SCHOOL OF FLYING

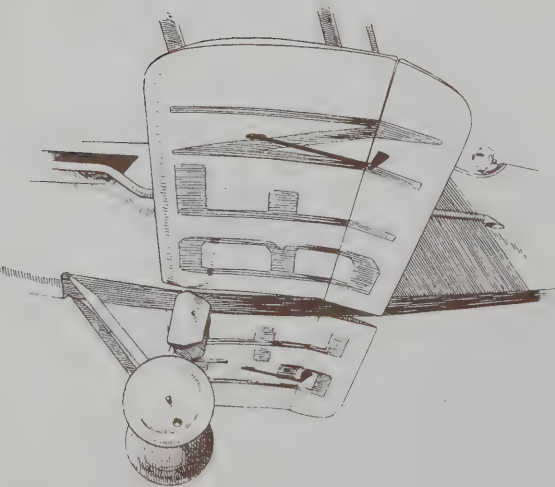


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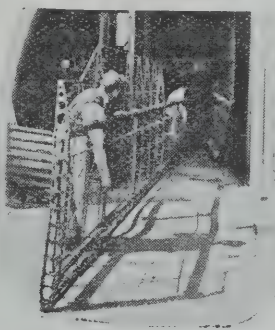
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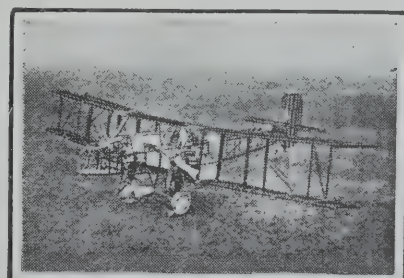
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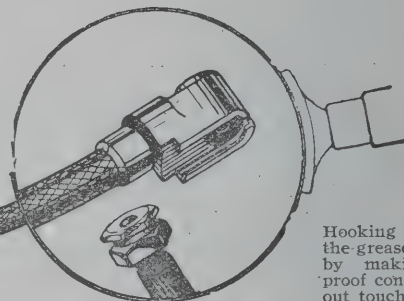
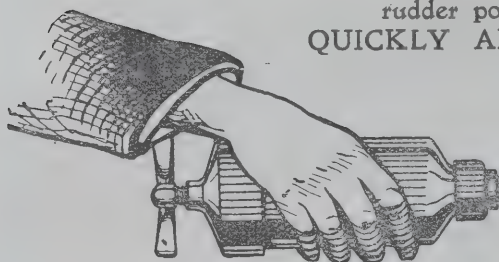
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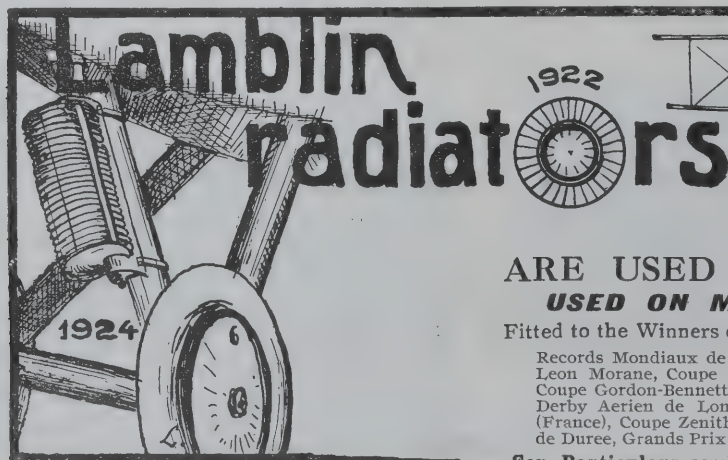
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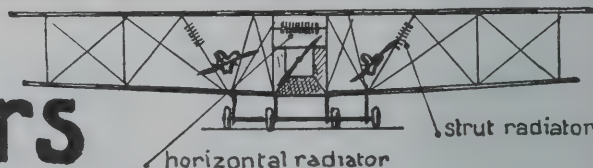
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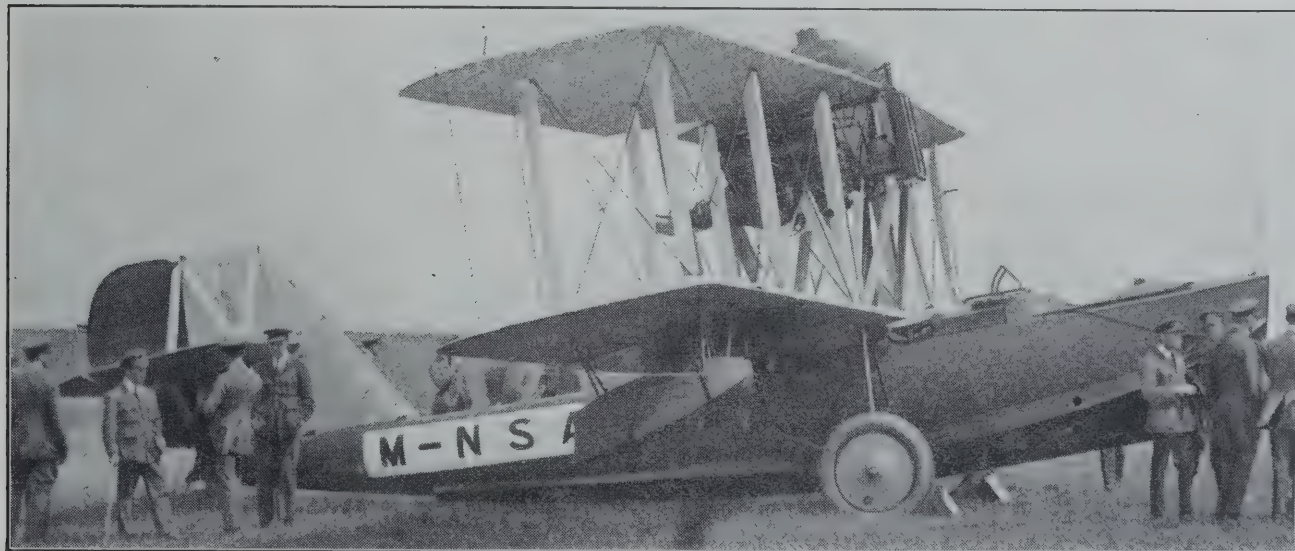
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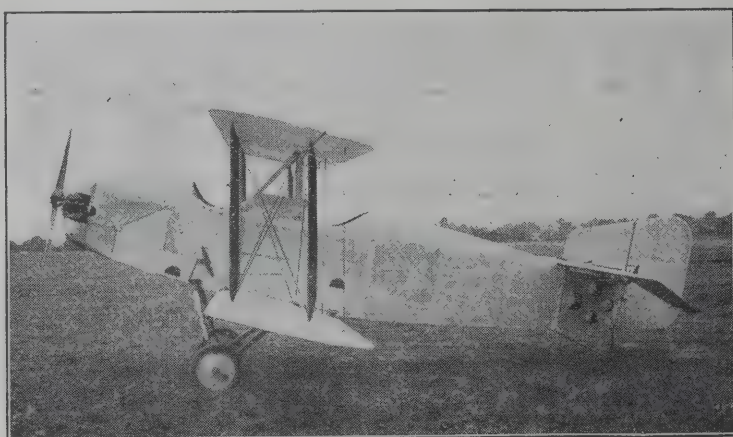
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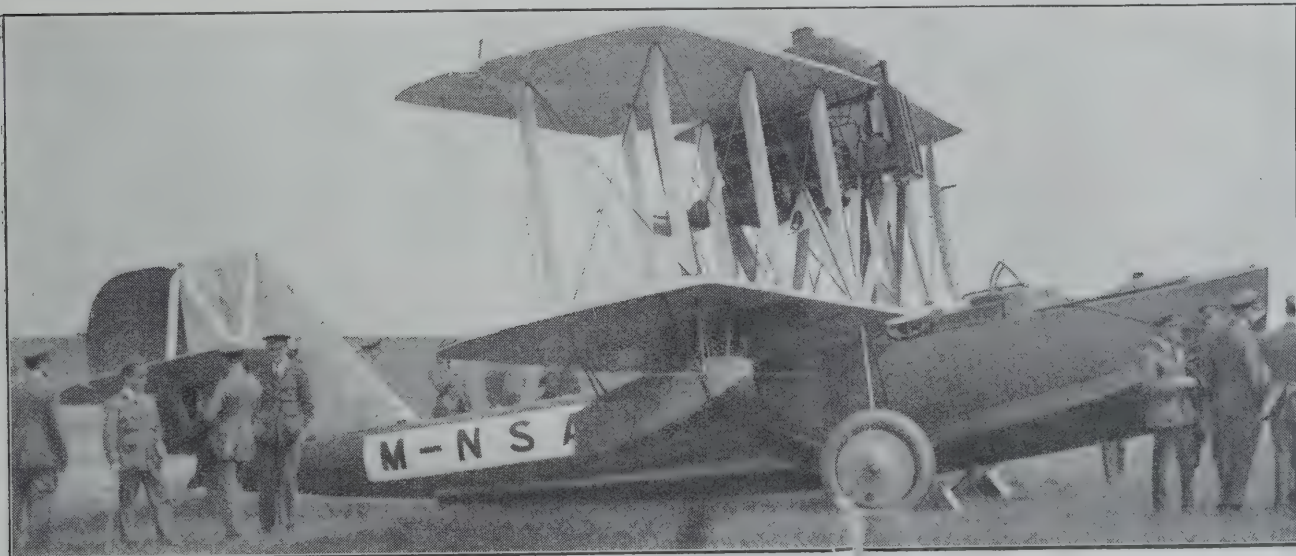
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